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Volume XXVI Number 6

The Journal OF Political Economy

JUN 6 1918

PUBLISHED BY THE UNIVERSITY OF CHICAGO
IN CO-OPERATION WITH
THE WESTERN ECONOMIC SOCIETY

JUNE 1918

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THE UNIVERSITY OF CHICAGO PRESS
CHICAGO, ILLINOIS, U.S.A.

THE CAMBRIDGE UNIVERSITY PRESS, LONDON AND EDINBURGH
THE MARUZEN-KABUSHIKI-KAISHA, TOKYO, OSAKA, KYOTO, FUKUOKA, SENDAI
THE MISSION BOOK COMPANY, SHANGHAI

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The Journal of Political Economy is published monthly, except in August and September, by the University of Chicago at the University Press. ¶ The subscription price is $3.00 per year; the price of single copies is 35 cents. Orders for service of less than a half-year will be charged at the single-copy rate. ¶ Postage is prepaid by the publishers on all orders from the United States, Mexico, Cuba, Porto Rico, Panama Canal Zone, Republic of Panama, Hawaiian Islands, Philippine Islands, Guam, Samoan Islands, Shanghai. ¶ Postage is charged extra as follows: For Canada, 30 cents on annual subscriptions (total $3.30), on single copies 3 cents (total 38 cents); for all other countries in the Postal Union, 42 cents on annual subscriptions (total $3.42), on single copies 5 cents (total 40 cents). ¶ Patrons are requested to make all remittances payable to the University of Chicago Press in postal or express money orders or bank drafts.

The following are authorized to quote the prices indicated:

For the British Empire: The Cambridge University Press, Fetter Lane, London, E.C. 4, England. Yearly subscriptions, including postage, 14*s.* each; single copies, including postage, 1*s.* 8*d.* each.

For Japan and Korea: The Maruzen-Kabushiki-Kaisha, 11 to 16 Nihonbashi Tori Sanchome, Tokyo, Japan. Yearly subscriptions, including postage, Yen 6.85; single copies, including postage, Yen 0.80.

For China: The Mission Book Company, 18 Peking Road, Shanghai. Yearly subscriptions, $3.00; single copies, 35 cents, or their equivalents in Chinese money. Postage extra, if mailed direct outside of Shanghai, on yearly subscriptions 42 cents, on single copies 5 cents.

Claims for missing numbers should be made within the month following the regular month of publication. The publishers expect to supply missing numbers free only when losses have been sustained in transit and when the reserve stock will permit. Deliveries are not guaranteed within the war zones of Europe, nor in other countries where transportation is disturbed by conditions incident to war.

Business correspondence should be addressed to The University of Chicago Press, Chicago, Ill.

Communications for the editors and manuscripts should be addressed to the Editors of THE JOURNAL OF POLITICAL ECONOMY, The University of Chicago, Chicago, Ill.

Entered as second-class matter, January 16, 1893, at the Post-office at Chicago, Illinois, under the Act of March 3, 1879.

THE JOURNAL
OF
POLITICAL ECONOMY

VOLUME 26 *June 1918* NUMBER 6

THE WAR INDUSTRIES BOARD: ITS DEVELOPMENT, ORGANIZATION, AND FUNCTIONS

I. INTRODUCTION

When on March 4 of the present year the President appointed Bernard M. Baruch chairman of the War Industries Board and defined his duties, he did not, as certain press reports have implied, create an industrial dictator. His action did clear the way for Mr. Baruch's assumption of the duties of a director of industrial war strategy, of an industrial chief of staff—for the present position of the War Industries Board in the American government is comparable in its relation to national industrial policy to nothing so much as the functions of the general staff of the army in its jurisdiction over military strategy. After a year of war the direction of industrial policy is placed in single hands, and a central planning board is established for dealing not only with the problems of production and purchase but with the whole attitude of the government toward the mobilization of business resources for the prosecution of the war. Leadership has been focused and an administrative channel opened for the inauguration of a studied and inferentially constructive industrial policy.

The great advance which this step marks is the definite fixing of responsibility for the administration of such a policy. It is

yet somewhat early to judge whether the powers of the reconstructed organization will be commensurate with the responsibility. Although the President's letter to Mr. Baruch conferred seemingly far-sweeping powers, existing legislative barriers still make many of those powers dependent in greater or less measure on the cooperation and consent of the existing departments and bureaus of the government. Unwillingness and delay in granting such consents on the part of departmental agencies during the past year have hampered and even wrecked some of the organizations which the newly constituted War Industries Board has supplanted. The first six months of the war produced indeed a constant succession of experiences with the unwillingness of bureau officials to relinquish in any form the responsibility and powers, especially for placing contracts, which were theirs by congressional enactment. The interdepartmental committees, munitions boards, and like agencies which sought to draw together for common planning the scattered and apparently conflicting interests of the production and purchase bureaus which had to deal with industrial problems each encountered the same handicaps.

Varying in the ingenuity of their structure, these co-ordinating boards fell alike before the fundamental weakness that their common action and their power depended on the voluntary delegation of authority by bureaus inspired with a spirit of competition in efficiency which transcended their desire to work together for a common cause. This is said in no spirit of undue criticism of the men who composed them. It is undoubtedly too much to expect of human nature that an official charged with the detailed administration of a separately constituted government agency should be able to regard the problems of a brother-official as of equal urgency with his own. The British experience in the early days of the war with "groaning cabinets"—planning bodies intended to undertake executive action, but composed of officials each charged with administrative duties and thus with special interests—was not far unlike our own. An executive arbiter with the final voice on all decisions is alone able to prevent such bodies from becoming mere disorganized debating societies.

Yet there are at least three excellent reasons for predicting more effective results from the War Industries Board as now constituted.

The first is that the President, far more definitely and emphatically than before, has thrown the vast prestige of his office behind the agency and has delegated to Mr. Baruch in no uncertain terms many functions of an extra-legal but widely extended character which the presidency has gradually assumed during the past fifteen years and especially since the beginning of the war. This in itself is a guaranty that the influence of the War Industries Board will be determined by no narrow legalistic interpretation of its powers.

The second is that, with the exception of its functions in the determination of prices, the final decision as to the action of the Board is vested by the President in the chairman exclusively instead of as hitherto in the Board as a whole. This gives hopeful promise of quick and decisive action and opens the way to a courageous and effective assumption of leadership by the man to whom he has delegated the functions which his letter defines. While it may yet be too soon to reach a conclusion, the methods adopted by the new chairman and his choice of assistants so far show no reason for questioning the confidence which the President has placed in him, and with that whole-hearted confidence behind him, as the American war government is now constituted, there seems little reason to doubt his ability to carry through any policy which he may decide to inaugurate.

Finally, the passage by Congress of the so-called "Overman" bill, of which there now seems little doubt (this article is written early in May), giving the President power to redistribute the powers of the executive departments in any way which he may wish, will undoubtedly make available to the President the power to remove any existing legislative obstacles to the assumption of full control over governmental industrial policy by the War Industries Board and its investment with any or all necessary prerogatives now held by the several existing production and contracting bureaus and departments.

II. ORIGIN AND EARLY HISTORY OF WAR INDUSTRIES BOARD

Before attempting to analyze in detail the wide scope of the Board's activities and its probable significance in the history of American participation in the war and perhaps of the period of

reconstruction, it will be valuable to review its origin and early history. As at present constituted it is only one and perhaps not yet the final phase of a gradual, if at times stormy, evolution in war organization at Washington. It is very distinctly a product of actual experience rather than a previously planned and more or less theoretical experiment based on foreign experience in centralizing control. In many ways it aims at a more thoroughgoing centralization of direction of production than the European systems which have been used as the chief basis of comparison by critics who have attacked the lack of cohesion in production policy at Washington during the past year.

To trace the history of the War Industries Board it is necessary to go back to the beginnings of the Council of National Defense and its Advisory Commission, under whose legal authority the Board was first organized and of which it is still technically a part. The Council of National Defense and Advisory Commission, it will be recalled, were created in a section of the Army Appropriation Act approved August 29, 1916. The Advisory Commission, in the words of the act, was to consist of "seven persons, each of whom shall have special knowledge of some industry, public utility, or the development of some natural resource, or be otherwise specially qualified, in the opinion of the Council, for the performance of its duties." In general, the Council was to study the industrial and transportation systems of the country and make recommendations as to the methods by which they might best be utilized in case of some possible future war; and the special knowledge of the Advisory Commission was to be employed in promoting this effort. The Council was authorized to create subordinate bodies and committees for special features of the work. There was in the act nothing suggesting the assumption of executive action by the Council or any of its supplementary bodies even in the event of a war; its whole object as stated and implied in the act was a peace-time survey.

The members of the Advisory Commission were appointed in October of that year. Yet it was not until March 3, 1917, that the Council was fully organized, although the Advisory Commission had met two or three times before that and had outlined certain

tentative plans for action looking toward a mobilization of industrial resources. Early in March, 1917, however, war seemed well-nigh certain, and the whole Commission, all of them men of large interests, came to Washington prepared to buckle down to work. By this time any idea of carrying out the letter of the enabling act by conducting a long-drawn-out survey of American industry had gone. The time was too short. Immediate action was vital, and while the Commission was not designed as an executive body, the law creating it was elastic enough to permit a great deal of successful effort toward bringing industrial organization in touch with the government through the several departments represented in the Council of National Defense.

The Commission divided itself into seven committees, representing respectively transportation and communication, with Daniel Willard as chairman; munitions and manufacturing (including standardization), with Howard Coffin as chairman; supplies (including clothing), with Julius Rosenwald as chairman; raw materials, minerals, and metals, with Bernard M. Baruch as chairman; engineering and education, with Dr. Hollis Godfrey as chairman; labor, with Samuel Gompers as chairman; and medicine and surgery (including general sanitation), with Dr. Franklin Martin as chairman. Under this arrangement the Commission constituted itself an informal advisory industrial cabinet—in a sense the first agency in the government to devote itself to the war industrial problem as an entity—with each member serving as a point of contact between the particular form of activity with which he was charged and the several government departments. The Commission met frequently, making numerous recommendations to the Council as to steps which should be taken to secure the best results from industry to the various bureaus and departments of the government, particularly those of the Army and Navy, then engaged in a hectic turmoil of war activity. Men of experience in the business and professional world were called to Washington by the chairmen of the seven committees to give their voluntary assistance in supplementing the work of the Commission, and even within the first month of its existence the Council's organization had been of invaluable assistance in drawing together at

Washington various lines of industrial activity in the interest of the national cause.

Yet as the war continued, increasing experience began to show weaknesses in the design of the Council's structure as applied to the new and unexpected task which confronted it. Admirably as it filled in many existing gaps in the peace-time structure of the executive departments of the government, the need gradually became apparent for more tightly constructed machinery. The situation was in no sense the fault of the men composing the Council and Commission, or of the designers of the organization, who had made their plans before the war was imminent. The country probably does not yet realize the debt of gratitude it owes the able volunteers whom the Council pressed into service for their versatile and energetic assumption of responsibilities of a totally unforeseen and unprecedented character.

Such failings as developed were the natural result of a courageous attempt to adopt a governmental agency designed for investigation and research to an executive purpose, and they should in no way detract from the very real and very concrete achievements for which the Council and Commission have been responsible. The statutory handicaps under which the organization has labored serve only to pay the greater tribute to its services. It is probable, indeed, that a period of experimentation and trial, with its inevitable proportion of partial successes and failures, was necessary in the early months of the war before the beginnings of a permanent solution could be worked out. In many other directions besides that taken by the offshoots which crystallized in the War Industries Board, the Council of National Defense and the Advisory Commission have served as a governmental laboratory for the inception of new ideas and their development into valuable elements of the federal war organization.

In the supply problem the bureaus and departments of the Army and Navy, organized on the old hard-and-fast lines established through generations of peace-time bureaucratic habit, naturally tended each to attempt to meet its own needs in its own way with little or no concerting of effort even when several needed large amounts of the same form of supplies. These purchasing

bureaus early began commissioning civilians to meet the great need for increased personnel, but this seldom affected the systems under which they were managed. Certain of these bureaus, directed by capable officials, handled their own individual problems unusually well. The fundamental weakness in the whole situation was not so much the individual incapacity displayed in a few instances by bureau officials as the lack of cohesion in the whole governmental system which prevented the adoption by all bureaus of a single policy toward industry.

While powerless to correct adequately this main deficiency, if indeed it was clearly seen anywhere in Washington in these early days, the Advisory Commission, acting partly under the specific powers of the Council and partly under the delegated authority of individual cabinet members, addressed itself to bolstering up certain of the more obvious breaches in the governmental machinery. This article need concern itself with the history of only two of the main committees of the Advisory Commission, those on supplies and on raw materials, as they alone have a direct bearing on the development of the War Industries Board. The third of the purely industrial committees of the Commission, that on munitions and standardization, had no more than a fleeting existence as a separate agency, as its potential functions were largely absorbed by supplementary agencies of the Council, and Mr. Coffin, its chairman, soon gave practically his entire attention to the specialized work of the Aircraft Production Board, of which he was made chairman.

While the whole Commission continued to give joint attention to questions of industrial policy at its frequent meetings, the two committees just mentioned, those on raw materials and supplies, with Mr. Baruch and Mr. Rosenwald respectively as chairmen, soon assumed also a large place in the actual administration of the affairs of the contracting departments. Almost their first step had been to call to Washington as volunteer committee members men whose experience in business had qualified them for expert assistance to the Quartermaster and Ordnance departments of the Army and the corresponding bureaus of the Navy in the problems of outfitting the nation's forces.

While inevitably these civilian volunteers had to contend with a certain amount of professional jealousy of interference from the military officials in charge of the bureaus, on the whole their efforts were welcomed in the face of the tremendous task before the government, and with the use of abundant personal tact they were able to contribute a great service to the national cause. Their greatest contribution was undoubtedly one of method. From the beginning they inaugurated the plan of dealing largely direct with the producer through personal conferences at Washington. Group after group of manufacturers and producers was called to the capital by the committees of the Council of National Defense, to be told in a heart-to-heart talk of the government's great need for their best effort, and as a result informal price agreements were negotiated which often bettered by several points the market price of the days before the war. It is impossible to say how much additional advance was prevented in the already fast-rising cost of living by the intervention of these trade agreements in place of the wholesale open-market bidding method traditionally pursued by the government bureaus. It unquestionably saved the government much money, but what is even more vital, it tended to reduce to the minimum the great price stimulation which would have followed throwing on an expectant short market the vast early demands of the government for army supplies.

In many instances this "pegging" of prices extended all the way down from the finished product to the raw material. In the case of shoes, for example, when such bids for shoe contracts as were made in the old way were finally opened, the price for tanned leather, hides, thread, and almost every other component of the finished product had been arranged for in advance by the government at a reasonable rate, so that the shoe manufacturers could bid with the assurance that no speculator had the opportunity to corner the accessory market against them and hold them up for an exorbitant price. The Secretary of War early suspended the statute making open-market bidding necessary, and while the Navy adhered to the open-bidding plan, which was more workable in its case because of the smaller amounts of supplies needed, the Navy Bureau of Supplies and Accounts was able frequently to take

advantage of the pegged prices on raw materials already arranged by the Committee on Supplies.

While certain specific duties were delegated to the Committee on Supplies by the Secretary of War, a great deal of its most effective work, as in the case of other agencies of the Council, was extra-legal in character—agreements negotiated or steps taken which might not in the last analysis have been binding in law, not because they violated the law, but because they were not covered by any existing legislation. They were simply born of the emergency and followed because good foresight and the national interest dictated the course. Some of these activities have since been severely criticized in Congress, and while mistakes were undoubtedly made, they were due rather to inadequate organization and divided responsibility than to bad judgment. It is difficult to believe that the historian's perspective will not in general approve the work of the Council organization in these early days.

Perhaps even more striking than the illustrations already given was Mr. Baruch's arrangement with the copper producers by which the government secured 45,000,000 pounds of the metal at less than one-half the current market price. Such negotiations as these, aside from their intrinsic value, were of service in two ways: first, they emphasized to the administration the superior effectiveness in bargaining of an agency representing the whole government empowered to act for all the bureaus, and dealing with industry as a whole; and secondly, they brought home to the representatives of business somewhat more clearly a real insight into their opportunity for service in the war. One of the most significant elements in the whole situation in the very earliest days of the Council is the way in which the spirit of the Sherman Law was shattered time after time in the interest of efficiency. Almost the first request made of each group of industrial representatives who came to Washington was that they organize a trade committee, representative as far as possible of the whole industry, to act as its spokesman with the government. In some instances the existence of these controlling committees has led to charges of favoritism to some large corporation or group of firms, but it is difficult to see how else any sort of system could have been

introduced into the general mobilization of industry gradually taking place.

All through this early period it will be seen that the essential features of the contribution of the Council's organization to the government service were initiative, foresight, and collective planning—qualities in which the overburdened bureaus were undoubtedly often sadly lacking. It was these qualities, brought into play through the able men in the extensive committee system which had grown up, which formed the chief inheritance from the old committee system of the Council to the existing organization of the War Industries Board. Without the foresight of the Committee on Raw Materials in determining long in advance the probable needs of the Ordnance Department for certain rare chemicals used in high explosives, in which a shortage existed, and the Committee's energetic action through various expedients in making supplies of them available long before they were actually needed, it is impossible to tell what might have become of the government's program for high explosives. It is the same quality of planning, on a wider scale, that the present War Industries Board is expected to provide.

Notwithstanding the service which these committees were thus able to render, centralized as it was through the director, the executive officer of the Council, they could touch the problem only at scattered points. With their indefinite and technically almost non-existent powers they could act virtually only where they were asked to do so by the department officials. Through sufficient urging they could exert some influence on prices and on policy generally, but only in specific instances, and in any given instance the final decision rested with the official constituted for the task by statutory authority. The Council committees' functions from beginning to end were purely supplementary, and while the personality of the members make "advisory" a misleading word, the disadvantages of divided power and somewhat more divided responsibility showed themselves immediately.

III. THE GENERAL MUNITIONS BOARD

The earliest manifestation of weakness in the iron-clad separation of bureaucratic functions displayed itself through a general

tendency on the part of the purchasing bureaus to bid against each other for all kinds of supplies and materials, with the result that those which had the most forceful personnel got the most effective results without regard to the relative importance of the work each had in hand. It was probably this tendency as well as the need for planning for the production of many forms of munitions entirely new to the War Department that inspired the creation of the General Munitions Board, the first of the attempts at a co-ordinating agency to draw the various departments and bureaus together for common planning. The somewhat earlier Munitions Standards Board, constituted for the purpose of standardizing specifications and tools for munition manufacturing, was soon absorbed by the larger body.

The General Munitions Board was composed of seven representatives of the Army, nine of the Navy, the chairmen of the Advisory Commission Committees on Supplies, on Raw Materials, on Manufacture, and on Medicine, and the chairman of the National Research Council, with Frank A. Scott, a Cleveland manufacturer, as chairman. In the words of the annual report of the Council of National Defense, "The efforts of the General Munitions Board were directed toward co-ordinating the making of purchases by the Army and Navy, and assisting in the acquisition of raw materials, and establishing precedence of orders between the Departments of War and the Navy, and between the military and industrial needs of the country." Its activities included developing sources of supply for almost every form of munition from rifles, ordnance, and shells to optical glass and gauges. It set up subcommittees which contributed invaluable aid to the construction of cantonments and the provision of storage facilities. It gave particular attention to collective consideration of price questions.

Yet inevitably from its size, its indefinite powers, and its loose organization its functions were more judicial than executive. The power of decision rested in the whole board rather than in the chairman, which necessarily detracted from the driving force of the organization. As in the case of the Committees on Supplies and on Raw Materials, with which it "co-operated," it had to deal chiefly with matters referred to it by the departments. The initiative as well as the final decision still rested with them. Under

an order of the Secretary of War, dated April 12 (the same as that in which the requirement for the public letting of bids was suspended), War Department Bureaus were told to consult the Munitions Board "where time permitted," in order that their orders might be "co-ordinated" with those of the Navy, but bureau heads were reminded in the next paragraph that their responsibility was in no way detracted from by this requirement. Under this arrangement a bureau head was at all times perfectly free to disregard at will any decision of the Board. The Committees on Supplies and on Raw Materials, to which the Munitions Board frequently referred special problems, remained virtually independent and co-ordinate agencies in the Council, some of their special subcommittees acting in a similar advisory capacity to the Board.

In practice this scheme proved unwieldy, slow, and inadequate despite the energetic efforts of the chairman of the Board, whose infinite tact and diplomacy brought about far better team work among the bureaus than might have been expected from most men in similar circumstances. The General Munitions Board began work on April 9. It lasted until July 28, when it was superseded by the War Industries Board, Mr. Scott remaining as chairman.

Despite its manifest weaknesses it had marked a distinct advance over a system with no connecting body at all. It served in a limited measure as a clearing house for orders, preventing the more flagrant cases of competition between departments and setting up the rudiments of a scheme of priority in orders. It gave an opportunity for common counsel on immediate questions of price. Finally, and perhaps most important, it helped to bring about a much-needed revision of specifications for many forms of munitions to permit quantity production in cases where the bureau requirements had aimed at so high a standard of perfection as to be beyond all reach of immediate commercial production. Yet inevitably because of its size and its constitution it was a negative rather than a positive agency. Its only power to enforce decisions lay in the personal force of its membership and the moral support of the Council of National Defense. It could prevent some mistakes, but it could hardly initiate policies.

IV. THE WAR INDUSTRIES BOARD: FIRST PERIOD

The War Industries Board which succeeded the General Munitions Board avoided some of the more obvious weaknesses in the old organization. It was made up of seven instead of twenty-odd members, all civilians with the exception of one representative each of the Army and Navy. The Committees on Supplies and on Raw Materials, with their numerous subcommittees of business men, were transferred from their position as independent committees of the Council and made "sections" of the new Board. Mr. Baruch was made a member of the Board, while Mr. Robert S. Brookings was appointed member of the Board in charge of finished products, Mr. Rosenwald remaining head of the section on supplies. Judge R. S. Lovett became a member of the Board in charge of priorities, while Mr. Hugh Frayne came in as a representative of labor. The Army and Navy representatives were Admiral F. F. Fletcher and Colonel (later Brigadier-General) Palmer E. Pierce. Messrs. Baruch, Brookings, and Lovett formed a committee for handling the purchases of the Allies, thus tending to avoid conflict in interest between them and the United States.

Many loose ends were thus drawn together, and the new Board was much more nearly an active planning board for industry than anything which had preceded it. Yet regarded as an industrial cabinet it still occupied a very anomalous position. Its hazy authority could be checked in many directions. As a subordinate body of the Council of National Defense it very definitely lacked power to take the initiative in industrial policy. It was still a clearing house rather than a directorate. Again, looked at from the point of view of effective administration, such authority as it possessed, whether delegated by members of the cabinet or assumed through the prestige of its position, was vested in the Board as a whole rather than the chairman, just as in the case of the General Munitions Board, with a resultant loss in driving force. Finally, as in the case of the latter Board, its decisions could be nullified, not only by the heads of the executive departments of the government, but also by chiefs and even subordinate officials of the purchasing bureaus, in whom statutory responsibility and power over contracts still rested. The bureau chiefs were subject constantly

to a dual responsibility—their legal responsibility to the heads of their departments, and at the same time their hazy dependence for guidance on the War Industries Board.

The board was still a "co-ordinating" body which depended for its effectiveness on the co-operation and consent of individual bureaus, and their unwillingness in many instances to accept its leadership was frequently a source of embarrassment both to the government and to industry. Aside from questions of policy the Board's lack of a definite status frequently produced unnecessary confusion in the mechanics of the dealings between manufacturers and the government. In a sense charged with supervision over production, the Board often found itself compelled to refer producers to individual bureau heads for information and direction even in questions involving several of them alike. While many of the threads of industrial activity converged in the Board, others remained unfocused. It is a distinct tribute to the quality of the men engaged in the Board's work that so much was accomplished toward bringing order out of chaos and developing the vestiges of a centralized policy through informal conferences between the Board and representatives of the bureaus, and between these two interests and the leaders of industrial enterprises.

Through the period from the creation of the War Industries Board to the date of the President's letter to Mr. Baruch in March probably no two problems better demonstrated the need for a more authoritative deciding voice than those of price and priority. Under the existing governmental system, short of the President, there was no one whose word was final on either question, and a certain amount of responsibility for both was distributed in an indefinite way among the individual heads of departments, their bureau chiefs, the War Industries Board, and its sections. The War Industries Board early set up an organization under Judge Lovett to decide questions of priority in production among the purchasing departments, and the Priorities Division of the Board was able to do much effective work toward eliminating conflict in war orders between the several departments and the Allies. This division grew in usefulness under Judge Lovett and still further increased its effectiveness under his successor, Judge

Edwin B. Parker, when Judge Lovett resigned to join the new Railroad Administration. Yet, especially in the earlier months of its existence, it was much hampered by special priority orders issued by individual production departments, particularly the Quartermaster Department, which in its eagerness to expedite shipment inaugurated its own special system and caused a great deal of confusion before the plan was finally abolished.

Yet the difficulties of establishing an effective system for administering priorities in production were largely of a mechanical nature. The much larger problem of determining priority in delivery as between military and non-military needs, between food and fuel and guns, between steel for merchant ships and steel for destroyers, and between guns for the Navy and guns for the Army, involving the whole question of large war strategy, was not vested in the Board, nor indeed vested anywhere definitely short of the President, and while Judge Lovett during his tenure of office with the Board was charged by the President with administering priority in transportation, the lack of an informed agency with comprehensive control over the whole problem was frequently apparent.

In the words of the statement issued by the Council of National Defense creating the War Industries Board, the Board was to "consider price factors." The actual form which its "consideration" took through the period from July 30 to March 4 was a series of agreements with the national representatives of various branches of industry on the price to be paid for their products. The price was to be charged alike to the American government, the public, and the Allies. While negotiated through collective bargaining, naturally these agreements had all the force of a price-fixing law, and they illustrate perhaps better than any other of the activities of the Board its tendency to become a central, executive, industrial planning board. It should be noted as further illustrating its trend that in each case the President's definite approval was secured before the price was adopted, making the Board here the direct agent of the President rather than of the Council, securing in this way the agreement of the several purchasing departments to the price determined upon, and giving the

Board as an ultimate weapon in bargaining the power of the departments to commandeer. Although agreements were negotiated by the Board on many kinds of commodities, the more important were basic raw materials, such as steel and copper. In most instances those on which prices were fixed were materials in which there was an actual or potential shortage, thus rendering them peculiarly liable to exploitation by profiteers. Further, to avoid conflict between the departments, when the prices were fixed the Board undertook the task of allocating to each department in the order regarded as most important its share of the material in question, thus taking over in a voluntary but none the less effective way the control of the national supply of many commodities.

It will be seen that in this direction the Board was progressing fairly rapidly to a determining position in industry. By 1918 the government had advanced a long way in collective planning on price from the time when one member of the President's cabinet publicly repudiated a price agreement approved by another member and when each department head in his negotiations with industry followed the individual theory in which he was a believer without regard to the confusing results to the nation of the differing policies. Yet the War Industries Board was even yet far from having a decisive voice on the whole question of price fixing and profits. Its activities were still governed rather by expediency in individual instances than by an established policy for which the whole administration took responsibility. The value of its methods in stabilizing the markets should, however, be none the less esteemed for that reason.

On the whole the period of the Board's history up to March 4 was marked by a gain in its importance brought about chiefly by the sheer pressure of circumstances toward a greater centralization of control, although its influence varied somewhat from time to time. Mr. Scott was compelled to leave his work in the fall of 1917 owing to ill health, and after an interregnum of several weeks the President asked Mr. Daniel Willard, chairman of the Advisory Commission, to take his place. Mr. Willard in turn resigned late in January to return to the administration of the Baltimore and Ohio Railroad. Judge Lovett served as acting chairman during

the greater part of the intervening periods. During the seven months the Board underwent many minor changes of organization, of which the most important was the complete elimination of the bulky industrial advisory committees which had first been attached to the Council and later to the Board. This step not only marked a gain in administrative efficiency through the supplanting of committees by individual expert executives, but also met the agitation in Congress for the complete divorcing from purchasing activities of representatives of business who might have any connection, however remote, with firms to whom contracts might be awarded.

Yet in spite of the extensive character of the Board's organization as it existed in the spring of 1918, and its contact with almost every conceivable phase of production and purchasing, it was still very largely what it had been when it was created in July of 1917, what the General Munitions Board had been, and what the germs of both organizations had been in the days of the early miscellaneous advisory committees of the Council—a supplementary agency without authority to assume leadership or control policy. It fixed prices on certain commodities, administered priority, acted as a clearing house, and performed certain delegated purchasing functions, but that was all; initiative still rested with the departments.

In the meantime the results of the lack of a guiding hand over all production had begun to show. A faulty distribution of war orders by the departments acting separately had become apparent, chiefly through the unnecessarily large need for emergency housing for labor. The country's industrial system showed signs of weakness here and there. Someone must determine for all the production departments the important question of converting less essential industries to war work. The policies to be pursued in building up new industries, the stimulation of production, the price question, not only on purchases by the government, but on all basic commodities, the determination of priorities in the broadest sense—all these matters were constantly calling for the decision which only an executive with the fullest power and broadest jurisdiction could make. Short of the President there was no such central executive in a position to make an unbiased decision.

V. THE WAR INDUSTRIES BOARD: REORGANIZED

It was such considerations as the foregoing which led the President on March 4 to make the War Industries Board into an agency of this character, with the power of decision resting definitely in the hands of the chairman on all questions except that of price. In the words of the President's letter, the functions of the board are:

1. The creation of new facilities and the disclosing, if necessary the opening up, of new or additional sources of supply.
2. The conversion of existing facilities, where necessary, to new uses.
3. The studious conservation of resources and facilities by scientific commercial and industrial economies.
4. Advice to the several purchasing agencies of the government with regard to the prices to be paid.
5. The determination, wherever necessary, of priorities of production and of delivery and of the proportions of any given article to be made immediately accessible to the several purchasing agencies when the supply of that article is insufficient, either temporarily or permanently.
6. The making of purchases for the Allies.

The duties of the chairman are:

1. To act for the joint and several benefit of all the supply departments of the government.
2. To let alone what is being successfully done and interfere as little as possible with the present normal processes of purchase and delivery in the several departments.
3. To guide and assist wherever the need for guidance or assistance may be revealed: for example, in the allocation of contracts, in obtaining access to materials in any way pre-empted, or in the disclosure of sources of supply.
4. To determine what is to be done when there is any competitive or other conflict of interest between departments in the matter of supplies: for example, when there is not a sufficient immediate supply for all and there must be a decision as to priority of need or delivery, or when there is competition for the same source of manufacture or supply, or when contracts have not been placed in such a way as to get advantage of the full productive capacity of the country.
5. To see that contracts and deliveries are followed up where such assistance as is indicated under 3 and 4 above has proved to be necessary.
6. To anticipate the prospective needs of the several supply departments of the government and their feasible adjustment to the industry of the country as far in advance as possible, in order that as definite an outlook and opportunity for planning as possible may be afforded the business men of the country.

In brief, he should act as the general eye of all supply departments in the field of industry.

In this letter the President practically delegates to the chairman of the War Industries Board his own authority so far as it extends to the supervision of the industrial needs of the departments and places him definitely at the head of them as a planning leader. For all practical purposes it removes the Board from the supervision of the Council of National Defense and makes it an agency responsible directly to the President, more or less co-ordinate in authority with the executive departments. Until the passage of the Overman bill, which will probably have occurred by the time this article appears in print, it will be impossible to give the chairman of the Board more legal authority over the production bureaus. Their responsibility will technically still be entirely to the executive heads of their departments. Yet even when the bill becomes law it is doubtful if the President will consider it wise or expedient to transfer more than a part of the legal responsibility of the bureaus to the War Industries Board. A large disruption of the existing machinery, built up on hard experience, should be wholly unnecessary. So long as the general directing control and the determination of industrial policy are centralized, detailed administration may well be left decentralized, especially with such vast machinery as has grown up in Washington.

In the actual machinery of the War Industries Board itself there have been and probably will have to be few changes. The Board as it now exists has under it special divisions and sections for handling particular supply problems, each in charge of experts. The Raw Materials Division has specialists for such materials as steel and its products, non-ferrous metals, chemicals and explosives, lumber, building materials, and the like, each with its complement of by-products. The Division on Finished Products and the Conversion of Industry includes such materials as cotton duck, machine tools, electrical equipment, optical glass, and a host of other things. Frequently of course the Board relies on the technical staff of one of the regular supply departments of the government for handling particular commodities.

Acting as the directing agency in the mechanism of the Board's organization is a "Requirements Division" composed of the heads of various sections of the War Industries Board, including the Priorities Division, and representatives of the Army, the Navy, the Emergency Fleet Corporation, the Food Administration, the Red Cross, the Railroad Administration, the Fuel Administration, and the Allied Purchasing Commission—practically all the government agencies which come in touch with the industrial field. To this agency the supply departments of the government furnish continually estimates of their future needs, keeping the division constantly in touch with the progress of their business, so that their requirements can be planned for far ahead. In turn the Requirements Division delegates to the proper division of the Board or to one of the supply departments itself, as the case may be, the task of meeting the need. Of this division the chairman of the War Industries Board is an ex officio member and is thus constantly in touch with the daily progress of business, although not compelled to devote himself to the detailed administration of it.

Priority of production is administered as before by the Priorities Division, of which Judge Parker is chairman, but a new agency has been set up by the Board for the administration of priority of delivery, of which Mr. Baruch is again an ex officio member, and which includes representatives of all the executive departments and special administrations, such as food and fuel, which touch industrial questions, joined together for common planning. It will be noticed that this agency hardly yet meets the requirements for a general war priority board to determine the largest questions of national strategy and to join military with industrial strategy. These decisions apparently rest now chiefly with the General Staff of the Army if not directly with the President himself. Yet the new Priorities Board in the War Industries organization is a long step in the right direction.

Finally the determination of price is now vested in a special committee, of which Mr. Robert S. Brookings, of the War Industries Board, is chairman, and of which Mr. Baruch is again an ex officio member. It includes General Palmer E. Pierce, member of the War Industries Board and Surveyor-General of Supplies for the

War Department; Paymaster Hancock, of the Bureau of Supplies and Accounts of the Navy Department; Dr. H. A. Garfield, Fuel Administrator; F. W. Taussig, chairman of the Tariff Commission; W. J. Harris, chairman of the Federal Trade Commission; and Hugh Frayne, the labor member of the War Industries Board. The Price Committee thus includes not only officials having to do with the commodities particularly to be considered, but also the basic factors entering into a just price determination. This again is a decided step in advance toward fundamental planning.

VI. FURTHER CO-ORDINATION REQUIRED

From the present trend of events the War Industries Board promises to become the sole directing agency between the government and industry. Backed by the power of the President to commandeer, to withhold fuel, and in other ways to force the halting into line, it can mold the country's industrial system almost as it will—whether in organizing the nation for war or in directing the lines along which it shall return to normal conditions when peace comes. In a system of government such as ours, where the responsibility for directing the war rests almost exclusively in the hands of the President, and where his power ultimately becomes almost absolute, the Board has been shaped into a very potent instrument.

Yet powerful as it may become, subject only to the jurisdiction of the President, it is well to remember that in a comprehensive national war plan it cannot stand alone. Its policies must be subject to the administration's general strategy in the war—for instance, to the amount of munitions in comparison with the number of men, or the amount of food that it wishes to send abroad at any given time. The munitions program and the conversion of industry to war purposes must be governed by the ultimate end in view. In addition, one of the great factors in production—the labor factor—is being administered by another government agency, and it is obvious that priority in the labor supply must go hand in hand with priority in materials.

Finally the War Industries Board is now virtually directing the government's price policy. Necessarily statesmanship demands

the most carefully studied relationship between prices and war finance. Great Britain, with her flexible parliamentary system, found her peace-time budget system easily adaptable to war and has been able to correlate her war taxation and her policy toward war profits. In the United States the responsibility for regulating prices—a "voluntary" but none the less effective system of regulation—has been assumed by the President, acting through the War Industries Board, while the ultimate responsibility for taxation rests exclusively with Congress, a constitutionally co-ordinate branch of the government.

The War Industries Board itself is a notable demonstration of the power of war to force concert of effort and collective planning, with centralized responsibility. As yet the President himself is the single determining force in the larger questions of broad war strategy, involving military and civilian problems alike, despite frequent conferences among officials dealing with interrelating problems, and between those officials and the President. Will the President's colossal task permit him to carry the war on his shoulders through another year without a further development of the small planning-board idea to assist him in the formulation of policy somewhat along the lines of the responsible ministries of Europe? Further, notwithstanding the apparent handicaps of constitutional barriers and political traditions, can the government carry through a long war without bringing together into a better working relationship those agencies which levy the funds and those which have the responsibility for their expenditure? It is through such advances in administrative methods, opening the way for constructive planning, that a national emergency such as the present can in some small degree help pay for itself.

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THE WORLD'S COAL SITUATION DURING THE WAR. I

I. GENERAL SURVEY OF THE PROBLEM

The coal industry is the one basic industry most closely connected with the present war. To both the Allies and the Central Powers their respective available coal resources constitute a *sine qua non* for carrying on the war, while in the period of reconstruction after the war coal will unquestionably become one of the most vital factors in determining industrial expansion and the growth of international trade.

Possibly no other single important industry has been affected so vitally in all its different stages by the war as the coal industry. It reflects in a plastic manner some of the most fundamental economic changes to which the war has given birth. The fact that in all the leading countries of the world more or less similar problems have developed during the past three and one-half years of the present world-war attaches an added interest to a comparative survey of the international coal situation at the present time.

Stimulation of coal production has been the factor of prime importance in the world's coal situation ever since the present great conflict of nations began. Everything else—prices, wages, transportation, legislation, etc.—has become primarily a means toward the all-important end of producing as much coal as possible. While complete production figures are not available for all coal-producing countries, Table I shows the production of coal in the leading coal-producing countries of the world during the five years from 1913 to 1917.

From the following table it will be seen that the coal production of most of the large coal-producing countries has decreased considerably since 1913. Great Britain, Germany, France, Russia, Austria, and Belgium show greatly reduced annual outputs. In the United States, Japan, China, Spain, and Holland the pre-war level was either maintained or increased. Canada shows a slight decrease. As will be explained more in detail later on, under each country separately, the main causes for the decline in coal production were lack of labor and inability to move coal from the mines

owing to car shortage. Strikes, inefficient labor, scarcity of machinery and pit timber were other contributing causes. The decrease in French, Belgian, and Russian coal production was caused by the German miiitary invasion of large parts of the coal fields in those countries.

TABLE I

COAL PRODUCTION IN THE LEADING COAL-PRODUCING COUNTRIES OF THE WORLD

	1913	1914	1915	1916	1917
United States	570,048,125	513,525,477	531,619,487	585,372,568	621,409,629
Great Britain	287,698,617	265,664,393	253,206,081	256,348,351	248,473,119
Germany	278,627,497	245,482,135	235,082,000	.....	.....
Austria-Hungary	59,647,957	.....	.....	30,896,388	28,558,719
France	40,843,618	29,786,505	19,908,000	21,477,000	28,960,000
Russia	35,500,674	.....	27,820,632	13,622,400	13,266,760
Belgium	22,847,000	.....	15,930,000	.....	.....
Japan	21,315,962	21,203,419	20,490,747	22,901,580	.....
India	18,163,856	.....	17,103,932	17,254,309	.....
China	15,432,200	.....	18,000,000	.....	.....
Canada	15,012,178	13,637,529	13,267,023	14,483,395	14,015,588
Spain	4,731,647	4,424,439	4,686,753	5,588,594	.....
Holland	2,004,608	.....	2,333,000	2,656,000	.....

In 1913 the total world-production of coal amounted to approximately 1,478,000,000 short tons.[1] Of this the United States, the largest coal-producing country of the world, alone produced about 38 per cent, Great Britain 22 per cent, and Germany 20 per cent. The fact that during the present war the production of coal in the United States has increased, while Great Britain's and Germany's production decreased, indicates that from 1914 to 1917 the lead of the United States as the greatest coal-producing country of the world has greatly increased.

TRANSPORTATION

Transportation has become, next to production, the most important problem in connection with the international coal situation. In fact difficulties of rail and water transportation have multiplied so rapidly during the course of the war that the whole question of supplying the world's needs of coal at present depends largely upon adequate shipping facilities.

The paramount importance of this phase of the transportation problem has been officially recognized in several special govern-

[1] "The Production of Coal in 1914," *U.S. Geol. Survey*, 1915, p. 63.

ment reports on this subject here and abroad. The Federal Trade Commission reported to Congress "that the coal industry is paralyzing the industries of the country, and that the coal industry itself is paralyzed by the failure of transportation."[1] The coal situation in Canada was described in a report submitted to the Minister of Labour[2] as follows: "Transportation had most to do with the conditions in so far as Quebec and Ontario were concerned. The partial failure of the railroads to meet the situation was probably the main cause of the [coal] shortage, as with transportation available coal could have been had." In Great Britain the first difficulty which arose in connection with the coal situation after the outbreak of war was one of distribution, due to the congestion of railways.[3] An official communication recently issued by the German government states that the inability to meet the demand for coal is solely due to lack of transportation facilities. Limitation of passenger traffic is suggested as a means of meeting the difficulty. Enormous stocks of coal at the mines, it is claimed, cannot be moved due to rolling stock shortage.[4] In the Scandinavian countries, France, Italy, and South America, all of which depend at present for a large part of their coal supply on oversea shipments, the scarcity of coal-carrying vessels and exorbitant freight rates have become a matter of grave concern.

As one means of relieving railroad traffic congestion zoning schemes have been put in operation in Great Britain, the United States, and France. These countries were divided into areas or zones, the interchange of coal between producing areas was restricted, and consuming districts were allotted specific sources of supply. As a further means for economizing railway transport, inland canals have been utilized for coal shipments in this country and in Europe to a greater extent than ever before. For many years practical coal men have advocated the buying and storing of coal by household consumers during the summer months so as to avoid coal traffic congestion occasioned by rush orders during the

[1] *Report of the Federal Trade Commission on Anthracite and Bituminous Coal*, 1917, p. 16.

[2] *The Labour Gazette*, June, 1917, p. 481.

[3] *The Board of Trade Journal*, January 24, 1918, p. 92.

[4] *The Iron and Coal Trades Review*, February 8, 1918, p. 145.

fall and winter months. Special inducements in the form of summer discounts were given with this end in view. Nation-wide educational campaigns to bring about greater co-operation of the public in this matter have been organized in several countries, and prospects are that the results attained will have a permanent beneficial effect not only on coal transportation but also on the financial side of the coal trade in the future.

THE LABOR SITUATION

The labor situation in so far as it affects the world's coal situation offers several distinct features. Throughout the world a shortage of labor has developed in the coal fields. It has been a matter of vital importance to the governments of all the coal-producing countries to provide for an adequate, steady, and efficient labor supply as a means of keeping the production of coal at the maximum. At the beginning of the war the mistake was made in Great Britain, Germany, and Canada of drawing heavily upon the coal miners for service in the army. This mistake reflected itself almost immediately in a decided falling off in the coal production, and made it necessary to send thousands of the enlisted coal miners back to the coal fields. In the United States thousands of men in 1915 and 1916 left the coal fields for more lucrative employment in munition factories, etc., where the scale of wages ranged on an average about 20 per cent higher than wages in the coal fields.

To keep miners from seeking other employment and to remove labor unrest due to wage troubles, liberal allowances for wage increase were made in the regulations governing maximum coal prices. The French law[1] of April 23, 1916, provides that the average wages in mines shall not be in any case below those in effect in 1914 and 1915, and that all payment in kind to the miners or their families, affirmed by local custom, shall be observed. In England the so-called "war wage" containing liberal provisions was established on September 17, 1917. In the United States a special wage-increase allowance of 45 cents per ton was provided for by an order of the United States Fuel Administration of October 27, 1917, this being the second wage increase for coal miners in that year.

[1] *Journal officiel*, April 23, 1916, pp. 3443 ff.

Never before in the history of coal-mining have wages in the coal fields of the world been as high as they are at the present time.

Nevertheless there has been much unrest and numerous strikes have occurred among the coal miners of Great Britain, the United States, and Germany. The main causes for these labor troubles have been shutdowns at the mines on account of shortage of cars, thus decreasing the number of work days, and a heavy increase in mine fatalities, due partly to inexperienced labor and partly to less rigid enforcement of mine safety regulations in order to speed production.

COAL PRICES

The question of wartime coal prices offers many angles of interest. Everywhere prices have increased far above pre-war levels. Voluntary agreements on the part of producers and dealers to limit prices and profits have failed without exception. In all the leading coal-consuming countries of the world maximum prices had to be fixed sooner or later by government action. In every case the maximum mine prices are considerably above the average scale of prices obtaining in the years immediately prior to the war. In every country where maximum sales prices at the mines were fixed liberal allowances were made for wage increases to mine-workers. In Great Britain present maximum mine prices approximate 6*s*. 6*d*. above the average mine price which obtained during the year ending June 30, 1914. In the United States special mine prices have been fixed for each state, and in many cases also for certain coal fields within a state. Taking the prices for bituminous and anthracite coal in Pennsylvania as typical, the difference between the average f.o.b. mine price for that state in 1913 and the most recent maximum f.o.b. mine prices is as follows:

Average mine price in 1913 per ton:[1]		
Bituminous		$1.11
Anthracite		2.13
Maximum price f.o.b. mines effective February 16, 1918, and March 23, 1918, for run-of-mine per ton:		
Bituminous	Central Pennsylvania	2.60
	Southwest Pennsylvania	2.00
Maximum price f.o.b. mines effective August 23, 1917:		
Anthracite	White ash broken	4.55
	Pea	4.00

[1] *The Coal Trade*, 1917, p. 158.

In Germany the total increase in mine prices of the Rhenish-Westphalian Coal Syndicate from the beginning of the war to January, 1917, approximated $1.25 per ton.[1]

It should be noted that the universal advances in mine prices of coal under the price-fixing laws of the various countries are due largely to wage increases, although the increased profits allowed the operators have also been liberal. It has been pointed out here and abroad that the increase in the labor item will tend to keep coal prices up after the war.[2] Labor leaders have repeatedly asserted that after the war the unions would under no circumstances countenance a return to pre-war wage scales.

While a certain degree of uniformity is noticeable in the rise in price levels for coal at the mines in the countries where maximum prices have been fixed, an entirely different picture presents itself if we compare the maximum retail coal prices obtaining under government regulations in different sections of the same country. In most countries the national coal controller has established a uniform maximum margin of profit for all retail coal dealers, while local authorities have fixed maximum retail coal prices for their communities. By reason of the fact that in establishing maximum retail consumers' prices allowances had to be made for increased handling expenses, freight rates, middlemen's profits, war taxes, etc., retail coal prices at the present time universally show a very heavy increase over pre-war prices.

In Great Britain the maximum net margin allowed retailers is 1 shilling per ton, in Canada 50 cents per ton, while in the United States an order of the United States Fuel Administrator, dated October 1, 1917, allows an increase of 30 per cent over the average gross margin of 1915.

In past years the bulk of the coal sold at the mines has been sold under contracts running for a year or more, and consequently contract prices have formed an important element in the coal-price situation during the present war. When the zoning scheme was established in Great Britain all coal contracts were terminated.

[1] *The Iron and Coal Trade Review*, January 5, 1917, p. 7.

[2] *Report to the American Manufacturers' Export Association by the American Industrial Commission to France*, pp. 149 ff.

An order of the United States Fuel Administrator of December 24, 1917, provides that no contract shall be made for a period longer than one year, that contract prices in the future shall not exceed the maximum prices in effect at the date of shipment of contract coal from the mine, and that all contracts shall be subject to cancellation upon order from the United States Fuel Administrator.

UNIFORM COST ACCOUNTING

While many of the recent economic changes affecting the coal industry are the result of temporary war conditions which will in due time give way to the normal conditions which prevailed prior to the war, some of them unquestionably have brought about permanent changes which will have to be reckoned with in the future. One of these, meriting special attention, is the effect of uniform cost-accounting regulations which have been established here and aboad under government control. In Great Britain, in Canada, and in the United States many thousands of operators, jobbers, and retailers are compiling at regular intervals cost reports on their business along uniform lines prescribed by their respective government authorities. The development of adequate cost systems has for some time been pointed out as a crying need for American business men.[1] According to a recent compilation,[2] 4,620, or 35 per cent, of all the business failures in 1917 in the United States were due to incompetence resulting from not knowing one's business thoroughly. This is largely a matter of inadequate cost accounting.

In order to procure sufficient data as a basis for fixing maximum prices and margins, the various governments mentioned above require standardized cost reports to be filed by coal producers and dealers, and this practically amounts to a systematic correspondence course in cost accounting covering the entire coal industry and trade. The full benefits of this training in business efficiency will be realized in the future and promises to be of incalculable value in the post-war period of readjustment, when domestic and foreign competition will be felt more keenly than at present.

[1] E. N. Hurley, *Awakening of Business*, 1916, p. 15.

[2] *Bradstreet's Journal*, February 2, 1918.

TENDENCY TOWARD COMBINATIONS AND STATE REGULATION

There has been considerable speculation as to whether the numerous governmental war measures of regulation and control of the coal industry would lead to nationalization of this industry in the near future. The exigencies of war conditions have brought into prominence as never before the vital importance of conservation of this natural resource. The waste and lack of efficiency in production and distribution under private ownership and under conditions of unrestrained competition were disclosed to the public eye when the old trade machinery broke down under the stress of a sudden dislocation, occasioned by the war, of the customary industrial and commercial organizations. And finally consumers have gradually realized that their interests, as well as those of the state, were not sufficiently safeguarded against the selfish aspirations of powerful and organized trade interests.

As far as public sentiment can be gauged by the press, by parliamentary debates, and by reports of special commissions which have investigated the problems involved, it is a noteworthy fact that the view is apparently rapidly gaining ground the world over that, if not complete nationalization, at least a much greater degree of state regulation of the coal industry and trade than existed before the war is desirable and in the public interest.

A tendency in this direction is already noticeable in legislation recently enacted or planned here and abroad. The French government is backing a bill limiting coal-mining concessions and providing for a participation of the state in the profits of the coal operators. The Austrian government recently introduced a bill for the nationalization of coal mines in that country. It is proposed to limit the period of grace for privately owned concessions to eight years for concessions notified before January 20, 1919, and to two years for those notified later. The scheme of a compulsory coal syndicate put forth by the German Federal Council in 1915 provided for government participation in the proposed coal syndicate. The Spanish law of July 12, 1917, creating a Coal Mining Council, is based on a similar policy. A law recently passed by the Congress of Bolivia provides for the conservation of that country's

coal resources.[1] The Swiss government has taken active measures to exploit coal deposits, a co-operative coal-mining society, with the government as member, having been formed in that country.[2]

Already several states own and operate coal mines, viz., Prussia, the Government of Victoria in Australia, and Bulgaria. The chief objections urged everywhere against nationalization of the coal-mining industry are the great extensiveness of the coal fields, which would make centralized control difficult, and the immense financial problems involved in taking over the coal mines. However the plan of compulsory syndication of the coal industry with government participation and under government control is being advocated in several countries and apparently is gaining ground as a compromise solution between wartime state control and pre-war private ownership.

In this connection mention should be made of the tendency among operators, jobbers, and wholesale and retail dealers everywhere to form voluntary trade associations and combines. In England such a movement on a large scale was initiated by Lord Rhondda just prior to the war, including not only the colliery owners but also the world-wide coal export trade of Great Britain. In Germany and France coal syndicates and cartels have existed for many years; in fact in the former country a strong effort was made in 1915 to disrupt the leading coal syndicate, which was averted, however, by government intervention. The combination movement has made itself felt most strongly during the war in the United States. In 1917 the National Coal Operators' Association, the National Jobbers' Association, and the National Retail Coal Dealers' Association were organized. In addition to these national associations, numerous state and local associations have organizations of their own, including about fifty operators' associations in various coal fields throughout the country. In Canada a similar movement is noticeable, as also in Sweden. Shipping pools like the Tidewater Coal Exchange, the Lake Erie Coal Exchange, and its successor, the Coal and Ore Exchange, indicate a similar

[1] *Commerce Reports*, March 1, 1917, p. 805.

[2] *Ibid.*, April 24, 1917, p. 305.

tendency toward syndication among American coal-shipping interests. On the other hand a parallel movement of combining is noticeable among the miners—the number, size, solidarity, and influence of the miners' unions in all the coal-producing countries having greatly increased during the war.

This universal movement of the coal producers and dealers on the one side and of coal miners on the other, to combine for the protection of their common interests, represents one of the significant developments in the world's coal situation, and the chances are that in the near future it will speed the various governments to enact remedial legislation in the public interest. As far as tax legislation is concerned, heavy excess-profits taxes, coal taxes, and coal-royalty taxes have been imposed on the coal industry in a number of countries during the present war. Under the British Coal Mines Control Act of 1918, colliery owners must pay an excess-profits tax amounting to 95 per cent. In France coal operators have to pay an excess-profits tax of 50 per cent, and an additional heavy tax has been placed on coal-land royalties as well as on imported coal. In Germany a coal-tax law provides for a tax of 20 per cent of the mine price per ton. The Austrian parliament recently enacted a similar coal-tax law.

EXPORT TRADE AND BUNKER SITUATION

An analysis of the international coal export situation from 1913 to 1918 reveals some very interesting facts. One of the most significant is the great decline in the coal exports of Great Britain, whose position as a commercial nation rests very largely on her coal export trade. The increased demand for domestic consumption and the decreased available shipping tonnage have brought the total of Great Britain's coal exports from 97,719,996 tons in 1913 down to 51,341,487 tons in 1917. This amounts to a decline in the coal exports for the two years of more than 46,000,000 tons. In comparison with these figures it is interesting to note that the total exports of anthracite and bituminous coal from the United States have increased during the same period from 23,022,746 tons in 1913 to 27,616,500 tons in 1917.

During the war, ocean freight rates on export coal have reached unprecedented figures. As compared with 1914, the last normal year prior to the war, ocean freights from Atlantic ports to European and South American ports have increased as much as 400 per cent. The data in Table II illustrate the increase in freight rates on coal shipped from the United States to Italy and to Montevideo from October, 1915, to the end of 1916.

TABLE II

From United States	To Italy	To Montevideo
October 23, 1915	$14.40	$ 8.88
January 1, 1916	22.80	12.60
May 27, 1916	33.60	20.40
November 13, 1916	24.00	13.20
December 26, 1916	39.60	19.20
April, 1918	.....	18.00

Scarcity of tonnage, high insurance rates on account of submarine depredations, and high wages for seamen were the chief causes for these high freight rates, although individual tramp steamers sailing under neutral flags apparently seized upon the opportunities for profiteering.

Closely connected with the question of coal exports is that of coaling stations for bunkering purposes. The nation which controls the coaling stations along the international sea routes will have a great advantage over its competitors in international trade. In the past Great Britain was the foremost maritime nation in possession of strategic artificial coaling stations, and thus gained control of the bulk of the world's supply of bunker coal. Gibraltar, Malta, Port Said, Singapore, Hongkong, and Shanghai are some of the British coaling stations which encircle the globe. The war has effected great changes. While Germany has lost the few coaling stations she possessed at Tsing-Tau, in Africa, and in the Samoan Islands, American, Japanese, and Dutch coals have won new markets. England's exports of bunker coal have declined from 21,031,550 tons in 1913 to 12,988,172 tons in 1916. In the Far East Japanese coal has in many places supplanted English coal, and on the entire Northern Pacific coast of Asia Japanese coal is now predominant. Nagasaki and Yokohama are the chief Japanese coaling ports, and

are used by practically all coal-burning steamers crossing the North Pacific. In the East Indies the Dutch have recently built up a successful bunker trade. Dutch coaling stations, supplying Sumatra and Borneo coal, have been established at Batavia, Soerabaia, and notably at Sabang, a strategic location at the entrance to the Straits of Malacca and on the direct trade route from Europe to the Far East.

The war has brought about a marked increase in the American bunker coal trade of the Atlantic. The excellent coaling facilities at Panama and Colon give the United States complete control of one of the most important replenishing depots of the world's trade. American bunker coal has also supplanted British coal to a very large extent at the leading South American stations.

The following table shows the gradual increase in the tonnage of American bunker coal loaded on board vessels in the foreign trade at the principal Atlantic ports from 1912 to 1917:

1912	5,873,018 tons
1914	6,080,722 tons
1915	6,907,525 tons
1916	7,216,656 tons
1917	7,454,332 tons

It is evident that England's former supremacy in coaling stations and bunker coal supplies has been weakened during the war by the spread of American, Dutch, and Japanese coal.[1] It is of course problematical to what extent Great Britain may regain her former oversea coal markets after the war. The good quality of her coal may decide. On the other hand greatly increased production, a large fleet of newly built coal-carrying vessels, and intelligent co-operation of American exporters under the new Webb law,[2] allowing combinations in foreign trade, promise to make the United States the leading coal-exporting country of the world. The financial weakness of foreign countries will be a further potent influence in favor of American exports in the future, and finally a significant fact which must be taken into account is that our facilities for loading coal exceed those of any other country.

[1] *The Americas*, February, 1918, pp. 7 ff.

[2] *Public Document No. 126*, 65th Congress.

BY-PRODUCT INDUSTRY

One of the most far-reaching and salutary effects of the war upon the coal industry in the United States, Canada, and Great Britain is the powerful stimulus it has exercised on the by-product coke industry. The present war has brought the people of these countries to realize their former dependence on Continental Europe, and on Germany in particular, for the by-products obtained in distilling coal, especially for dyestuffs. Up to a few years ago the United States was the most backward of all great nations in the manufacture of coal tar products.[1] Since 1915 all this has changed. The old beehive oven is being supplanted by by-product ovens to such an extent that in the three years from January 1, 1915, to January 1, 1918, the by-product coke production has practically doubled, and there has been as much gain as in the previous twenty years. In addition to the great stimulus given to the chemical and manufacturing industries by the supply of such an abundance of raw materials, one of the most valuable results of the introduction of the by-product coke ovens is the conservation of our coal supply. It is estimated that the ovens put in operation during the three years mentioned above will save annually to this country the fuel equivalent of 9,000,000 tons of coal.[2] The value of by-products obtained in the manufacture of coke in the United States from 1913 to 1915 was as follows: 1913, $16,925,941; 1914, $17,529,088; 1915, $29,824,579.

In Great Britain the recovery of by-products from coal is being actively encouraged by the government along systematic lines with a view to future expansion of this industry on a large scale. A special Fuel Research Board has been organized for this purpose, and a fuel research station has been established to investigate the problem of replacing the greater proportion of raw coal now used by the substitution of various fuels obtainable from coal after the by-products have been extracted.[3]

[1] *Mineral Resources of the United States*, II (1915), 515.

[2] *Coal Age*, April 27, 1918, pp. 772 ff.

[3] *Report of the Fuel Research Board*, London, 1917.

II. GERMANY

The German coal industry had been well organized for several years prior to the present war. The controlling factor, as far as production as well as distribution is concerned, was the Rhenish-Westphalian Coal Syndicate, a stock company organized in 1893 and comprising 67 members in 1914, with a total production in 1912 of 103,409,865 short tons of coal. The Syndicate also controls the transportation of coal on the Rhine and is closely allied with the leading coal dealers' cartels.[1]

When at the outbreak of the war a general dislocation of industrial conditions developed, the coal situation in the German Empire was much less affected than in most other countries because of the fact that the coal industry was well organized. It is a significant fact that when war conditions finally made government regulation and control necessary the transition was accomplished by considerably less disturbance of trade conditions than in other countries where state control upset all the customary channels of trade.

The first great problem that came up at the beginning of the war was the threatened dissolution of the Rhenish-Westphalian Coal Syndicate. The voluntary syndicate agreement was to expire in November, 1915, and disagreements among the mine owners made the voluntary formation of a new syndicate improbable. The seriousness of the situation caused the Federal Council to issue a decree[2] on July 12, 1915, which provided for the formation of a compulsory syndicate unless the syndicate agreement would be renewed.

The compulsory syndicate was to be subject to the supervisory authority of the higher state officials. The Prussian Minister of Commerce would have the right of final decision in fixing prices, and a government official was to be a member of the board of directors with veto powers. This threat of state intervention led the colliery owners on October 14, 1916, to form a so-called "transition syndicate." Finally on April 1, 1917, the syndicate agreement was renewed for five years.

[1] *Report of the Federal Trade Commission on Co-operation in American Export Trade*, 1916, pp. 327 ff.

[2] *Reichs-Gesetzblatt*, 1915, No. 113, pp. 535 ff.

REGULATION OF PRICES

Maximum coal prices for the German Empire were fixed by the government as early as December, 1914.[1] As the war continued the coal situation grew more serious. Increased demand, decreased production, transportation difficulties, and coal shortages in the large cities brought further government action. On February 24, 1917, an Imperial Announcement relating to the Coal Trade[2] was published, authorizing the Chancellor to requisition the domestic production of hard coal and lignite and to cause producers or owners of coal to turn their stocks over to parties designated by him. He was also authorized to collect data regarding stocks on hand, production, and consumption. In case of disagreement the price of coal thus requisitioned is to be determined by a board of arbitration, appointed by the Chancellor and consisting of one representative each of the producers, of the coal trade, and of the Imperial Arbitration Board of War Economies.[3]

A special decree of February 28, 1917, authorized the appointment of an Imperial Commissioner of Coal Distribution.[4] This office is to be attached to the War Department, but the Commissioner is to be independent in his decisions. The decree authorizes the Commissioner to organize branch offices for equalizing distribution. He is to have an advisory council, consisting of representatives of the Interior and Navy Departments, of the State Governments, the coal operators, the coal trade, and the consumers. The advisory council, whose members are appointed by the Chancellor and who serve without pay, is to be consulted by the Commissioner on all questions concerning fundamental policies.

PRODUCTION DURING THE WAR

During the war the production of coal in Germany has been wholly unequal to the ever-increasing demands. Table III indicates the output of coal, lignite, coke, and briquettes during the years 1913 to 1915 in metric tons.

[1] *Ibid.*, 1914, p. 516.
[2] *Ibid.*, 1917, p. 167.
[3] *Ibid.*, 1917, p. 250.
[4] *Ibid.*, 1917, p. 193.

Exact figures for 1916 and 1917 have not been published, but an official statement was issued recently[1] stating that the production of coal has approximately reached the level prevailing prior to the war. From the following figures it will be seen that in 1914 the output of coal decreased almost 30,000,000 tons, or about 15 per cent, as compared with 1913, while in 1915 the output of coal was 44,798,804 tons less than in 1913. While the production of coal shows a heavy decline for 1914 and 1915, it is interesting to note that the output of lignite has increased. The reduction in the output is said to have been caused by three factors: an insufficient number of miners and their helpers, a lessening of the productive capacity of the labor force, and a lack of necessary equipment.

TABLE III

	1913	1914	1915
Coal	191,511,154	161,535,224	146,712,350
Lignite	87,116,343	83,946,906	88,369,554
Coke	32,167,716	27,324,712	26,359,430
Briquettes from coal	5,823,776	5,948,929	6,392,484
Briquettes from lignite	24,447,979	21,448,600	23,350,464

At the beginning of the war fully one-third of the coal miners were called to serve in the army. To make up for this loss of men, the outside men at the mines were replaced largely with women and boys, so that the former might work on the inside. Many prisoners of war were also employed for work in the mines. From time to time soldiers were furloughed to help in increasing the production. In July, 1916, the average output per man per shift was 1.01 metric tons of coal. In April, 1917, the Langenbrahm mine, working under favorable conditions, showed an average of only 0.9 ton, and its total daily production had declined in the meantime from 1,260 to 784 tons.

The cost of production has risen considerably, due largely to increased wages. For the Langenbrahm mine the cost per metric ton was 8.69 marks ($2.07) in July, 1916, and 16.16 marks ($3.85) in April, 1917. Wages of German coal miners have increased from

[1] *The Iron and Coal Trades Review*, 1918, p. 145.

50 to 100 per cent during the period from 1914 to 1917.[1] This increased cost of production led to an increase in prices. It has been estimated that the price of coal has advanced 93.5 per cent between 1914 and 1917, while coke prices advanced 72 per cent and the price of briquettes 48.7 per cent in the same period. The high cost of fuel was further augmented by increased costs of transportation, especially water freights, and by special coal taxes. On April 8, 1917, the Coal Tax Law[2] was enacted which puts a tax on domestic and imported coal. For domestic coal the tax amounts to 20 per cent of the value of the coal at the mouth of the mine. This tax is to be collected from the producer. Coal consumed at the mines and by colliery employees is exempt from this tax, as is also coal used in the manufacture of oils, fats, wax, etc.

The extraordinary demands made upon the railroads by the military authorities materially reduced the output of the mines. Large stocks of coal accumulated at the mines and idle shifts had to be introduced. When the difficulties in distribution began to increase in 1915, the State Mining Administration in the Ruhr district established a general merchant association for the disposal of coal from the government mines. A sales organization was formed for this purpose at Duisburg, with a branch at Mannheim. Later similar sales organizations were formed at Cologne and Hanover.

One of the first steps of an industrial character taken by the German government at the outbreak of the war was to stimulate, so far as possible, the output of coke in order to increase the production of by-products. As a result of the government's action the adoption of coke as a substitute for coal has become more and more general on railroads and for industrial purposes.

Notwithstanding the decrease in production of the German coal mines and the increased domestic demand for coal by war industries, Germany has been able to export limited quantities of coal to Switzerland, Holland, and the Scandinavian countries. This was made possible by the additional output of the Belgian and Polish

[1] *Ibid.*, April 19, 1918.

[2] *Reichs-Gesetzblatt*, 1917, p. 340.

collieries in the territories occupied by the Germans. On September 2, 1916, an agreement was made with Switzerland which provides among other things that Germany shall supply every month 253,000 tons of coal to Switzerland to be dealt out by the Central Office for the Supply of Coal in Switzerland, at Basel.[1]

BELGIAN COAL MINES

Occupation of Belgium brought into German control a considerable annual coal tonnage. In 1913 Belgium produced 22,847,000 tons of coal; in 1915, 14,244,000 tons of coal, 484,000 tons of coke, and 1,202,000 tons of briquettes.

By a special order[2] the German Governor-General of Belgium on April 26, 1915, established an administrative corporation, the Central Coal Organization (Kohlenzentrale), to deal with all questions appertaining to the distribution of coal, coke, and briquettes produced in Belgium. The headquarters of this organization were located at Brussels, with branches at Liège, Charleroi, and Mons.[3] All Belgian coal producers are compelled to place their entire output at the disposition of this organization, which attends to the distribution of the entire output of the Belgian coal mines. Under the special order the proceeds realized from the sale of the coal are to be turned over to the producers after deducting an adequate fee to cover the handling expenses.

III. FRANCE

Of the large coal-producing countries France was hit hardest by the war. As a result of the German occupation of the northern sections of France, nine Departments, covering 68 per cent of the coal supply of France, fell into the hands of Germany.

The normal coal production of the French collieries is about 40,000,000 tons per year. Since the beginning of the war the annual output of coal in France has been cut nearly in half, although more intensive exploitation of the mines in the uninvaded regions has somewhat increased the normal production. The increased output

[1] *The Iron and Coal Trades Review*, 1916, p. 581.

[2] *Gesetz- und Verordnungsblatt*, No. 65, p. 475.

[3] *Ibid.*, No. 134, p. 1259, and No. 96, p. 783.

of the mines in the southern coal districts of France—St. Etienne, Alais, and Le Creusot—was made possible largely by Belgian and French refugees who formerly worked in the coal mines of Belgium and Northern France. The following figures show the total production of coal in France from 1913 to 1917: 1913, 40,843,618 tons; 1914, 29,786,505 tons; 1915, 19,908,000 tons; 1916, 21,477,000 tons; 1917, 28,960,000 tons.

France has never been able to supply sufficient domestic coal for her own requirements. Over against an annual normal production of 40,000,000 tons, the French coal consumption prior to the war averaged 60,000,000 tons per year. The normal shortage of approximately 20,000,000 tons was made up through importation. In 1913 the coal imports of France were as follows:

From Great Britain	11,257,000 tons
From Belgium	3,669,000 tons
From Germany	3,491,000 tons
From other countries	294,000 tons
Total	18,711,000 tons

Since 1914 the fall in production has been accompanied by a fall in consumption to about 40,000,000 tons, leaving the coal shortage as before—about 20,000,000 tons. Nearly all of the coal imported into France since 1914 has come from England. In 1914 imports from England amounted to 15,430,000 tons; in 1915 to 19,067,000 tons; in 1916 to 20,952,000 tons; and in 1917 to 18,470,000 tons.

REGULATION OF PRICES

In 1914 and 1915 the fuel situation in France was not alarming. In the beginning of 1916, however, the demand for coal increased both for munition plants and for private industries, and the increase in price of coal assumed disquieting proportions. Under normal conditions the average mine price of coal in France fluctuated between 10.8 francs and 15.8 francs. With the heavy decrease in production caused by the loss of the northern coal mines, in addition to increased demand and abnormally high freight rates for imported coal, the price of coal at the mine had increased in the winter of 1915–16 up to 70 francs per ton. Freight rates on

British coal had increased from 8 francs in 1914 to 60 francs per ton in April, 1916.[1]

The French government now initiated a series of regulatory measures intended to curb speculative prices and to control distribution. By a special law of April 22, 1916,[2] it was provided that maximum prices be fixed for coal sold at the mines and for imported coal. A presidential decree appointed a central commission for fixing coal prices under the foregoing law. Maximum prices were first announced on August 8, 1916,[3] and revised several times thereafter by subsequent ministerial decrees.

A decree of December 31, 1917,[4] fixed maximum prices at the mines for the Savoie and Haute-Savoie basin, as follows: large screened coal, 52.25 francs; run of mine, 42.25 francs; small sizes, 32.25 to 37.25 francs. Maximum freight rates on contracts for the transportation of coal between British and French ports were fixed on May 27, 1916.

To insure greater co-operation among the government departments controlling the imported and French mined coal, a new Ministry of General Subsistence and Maritime Transports (Ministère du ravitaillement général et des transports maritimes) was organized, under a presidential decree of April 7, 1917,[5] which took charge of all food and fuel supplies both domestic and imported. A special decree of June 1, 1917,[6] created within the Ministry of Subsistence a Fuel Division (Direction des combustibles) and Mr. Duperrier, the chief engineer of bridges and highways, was appointed head of this division. By a decree of July 3, 1917, the general direction of the national fuel supply was transferred to the Minister of Munitions and War Manufactures, the Undersecretary of State for War Manufactures, M. Loucheur, to be in direct charge. The same decree also transfers to the same undersecretary the administration of coal mines, thus concentrating the control of production and distribution of coal in the same authority. On November 28, 1917, a Consulting Committee of Mines was created by a special decree to assist the Ministry of

[1] *L'Economiste français*, March, 1917, p. 270.
[2] *Journal officiel*, April 23, 1916, p. 3443.
[3] *Ibid.*, August 9, 1917, pp. 7220 ff.
[4] *Ibid.*, January 1, 1918, p. 91.
[5] *Ibid.*, May 6, 1917, p. 3614.
[6] *Ibid.*, June 6, 1917, p. 4411.

Armament and War Manufactures in increasing the production of the coal mines.

Considerable suffering on the part of small consumers who were largely at the mercy of profiteering coal speculators, who bought up coal from the importers and coal-mine operators, led to further government control of distribution. On April 29, 1917,[1] the Minister of Subsistence authorized the prefects of each county to organize coal apportionment commissions to be presided over by sub-prefects and to be composed of the general councillors of the county and of the mayors of the chief cities. Beginning with June 15, 1917, coal is to be sold to consumers only upon coal cards authorized by the above-named commissions. The maximum quantity of coal to be delivered weekly to each household is limited to 50 kilograms (110 lbs.). To prevent hoarding, coal dealers and others had to declare in the mayor's office before June 20, 1917, the quantity of coal in their possession in excess of 1,000 kilograms.

The importance of safeguarding the country's coal resources in the future is being fully recognized by French statesmen. It has been proposed to amend the French Mining Law of 1810 by modifying the duration of concessions and including the participation of the state in the profits of the mines. A recent bill[2] backed by the government provides that mines become the property of the state on the expiration of the concessions, the duration of which shall be limited to 99 years. The bill provides also that the state be given a progressive share in the profits after cumulative profits of 6 per cent on the share capital have been allotted to the proprietors. In the *exposé des motifs* accompanying the bill it is pointed out that the proposed reforms have already been put into effect through indirect methods.

In France as in Great Britain the coal industry has been heavily taxed during the war. A law of July 1, 1916,[3] imposes a war excess-profits tax of 50 per cent on mine owners. The Budget Law[4] of December 30, 1916, doubled the taxes on mining royalties

[1] *Ibid.*, April 30, 1917, pp. 3453 ff.

[2] *Ibid.*, Doc. Parl., 1917, Ch. Dep., p. 1956.

[3] 12 Dalloz 177.

[4] *Journal officiel*, Dec. 30, 1916, p. 11209.

and a decree of November 5, 1917,[1] imposed a tax of 5 centimes per ton on imported coal to pay the expenses of the national coal bureau.

IV. GREAT BRITAIN

The outbreak of the war came at a time when the British coal industry was in the midst of the most profitable period of its history. During the seven years from 1907 to 1914 prices, profits, and wages were higher and trade conditions generally more stable than in any previous period. A significant feature of the British coal trade during the period just mentioned was the combinistic movement, initiated by Lord Rhondda, who brought about an immense concentration of ownership in coal properties. About one-third of the output of the South Wales coal field was brought into the control of three combines—the Ocean-Wilson, the Cambrian, and the Ebbw Vale–Beynon combines. Formerly the producing and the marketing ends of the British coal trade were quite separate. Lord Rhondda was instrumental in bringing about a change by linking with his colliery interests some of the leading domestic selling agencies and a large proportion of the British coal export machinery, including numerous coal depots in foreign countries.

With the war a complete change has come over the whole coal industry and trade of Great Britain. Competition has been superseded by state regulation to such an extent that at the beginning of the present year the tentacles of the state almost entirely inclose the industry. A view of the complex government machinery which has displaced private control of Great Britain's coal industry may be gained from the following list of government departments:[2] Department of the Controller of Mines, Department of the Shipping Controller, War Trade Department (Coal Division), Coal Exports Committee, Ship Licensing Committee, Inter-Allied Chartering Executive, Italian Coal Committee, Bureau des Charbons of the Ministère des Travaux Publics, Paris, Central Executive Committee of Great Britain for the Supply of Coal to France and Italy. The most important of these departments and committees are now under the direction of the Controller of Coal Mines in whose hands

[1] *Journal officiel*, Nov. 5, 1917, p. 8903.

[2] *Statist*, 1918, p. 187.

the control of all the various phases of production and distribution has been gradually centralized.

Labor unrest in South Wales, which supplies most of the coal for the British navy, was the decisive factor which led directly to the taking over of the coal mines by the state. From the beginning of the war there had been trouble in South Wales, arising from the constant conflict between the coal miners and the colliery owners on the question of wages. Finally David Lloyd George, then Minister of Munitions, intervened and conceded the miners a 15 per cent bonus despite the opposition of the operators.

When, however, new disputes arose growing out of a further demand by the miners for a second 15 per cent increase of the war bonus and this trade dispute threatened to interfere seriously with Great Britain's coal supply, the British Government, by an order of the Board of Trade under Regulation 9G of the Defense of the Realm Act,[1] assumed control of all the coal mines in South Wales, on November 29, 1916, for the period of the war. On February 22, 1917, the remaining coal mines were placed under control of the government.

Up to the beginning of 1917 numerous voluntary emergency agreements had been put in operation for the purpose of coping with the extraordinary coal situation that had developed. The underlying purpose of all these schemes had been to interfere as little as possible with the ordinary trade channels. However all the various voluntary efforts were without permanent success. More stringent centralized government control became necessary. Accordingly on February 19, 1917, the Board of Trade established a separate office, the Coal Mines Department, to control the coal industry. Mr. Guy Calthrop, formerly general manager of the London and Northwestern Railway Company, was appointed Controller of Coal Mines. An advisory board consisting of seven representatives each of the colliery owners and of the Miners Federation, and a special board of financial advisers and special assistants in matters relating to the production and distribution of coal were attached to the Controller's office. The powers given to the

[1] *Defense of the Realm Manual*, 3d enlarged edition, revised to February 28, 1917, p. 315; see also *Board of Trade Journal*, February 22, 1917, p. 550.

Controller are very comprehensive and include full power to control the production, distribution, prices, and consumption of coal in so far as he may consider necessary.

REGULATION OF PRICES

Prior to taking over the coal mines the government had enacted a law limiting mine prices. In the early stages of the war difficulties of distribution, arising out of congested railway traffic, a heavy increase in domestic demand, and greatly decreased production, had resulted in ever-rising prices. To curb these the Price of Coal (Limitation) Act of July 29, 1915, was passed,[1] which established a maximum or "limitation" price for coal at the mines. It provides that the price of coal sold at the pit's mouth shall not exceed the average price for the same kind of coal realized during the twelve months ended June 30, 1914 by 4 shillings per ton. Later the Board of Trade authorized a further advance amounting to 2 shillings 6 pence per ton, in order to offset a wage increase granted miners. Thus the maximum price fixed by the government for coal at the mines amounts at the present time to the average price for the year ended June 30, 1914, plus $1.62 per ton.

The commission of wholesalers and jobbers was regulated by the Wholesale Coal Prices Order of September 5, 1917. This order imposes a maximum of 1 shilling per ton to the pit head prices, in addition to the actual cost of transport, for coals for household consumption.

The profits of retail coal dealers in the provinces were regulated by the Retail Coal Prices Order of September 11, 1917. Under this order the prices at which coal delivered by vehicles from a depot, wharf, or railway siding, in lots of one ton or over, may be sold shall not exceed by more than 1 shilling per ton the price of the coal delivered at the depot, in addition to the cost of handling and delivery. The maximum retail prices in each locality are to be fixed by local authorities—borough, urban, and rural district councils in England, county and town councils in Scotland, and

[1] 5 and 6 Geo. 5. ch. 75. *Defense of the Realm Regulations* (monthly edition) consolidated and revised to March 31, 1917, edited by Alexander Pulling, C.B., p. 2.

borough and urban district councils, town commissioners, and rural district councils in Ireland. The local authorities after investigation of the figures submitted by the local coal merchants are to publish in the local press lists of prices allowed and the retail dealers must display these price schedules.

REGULATION OF LONDON RETAIL TRADE

During the winter of 1916–17 a serious coal shortage developed in London, the ordinary trade channels for distribution breaking down completely. To prevent recurrence of such a situation, a special Household Coal Distribution Order for London was put into operation August 10, 1917. This order covers an area comprising about two million separate houses and premises. A metropolitan Distribution Branch was established and charged with the execution and administration of the order. Under this order retail coal purchases are limited, for the period from October 1 to March 31, to from 2 cwts. per week for a house of not more than 4 rooms to 1 ton for a house of 7 rooms. For the period from April 1 to September 30 in each year the allowance shall be at the rate of half that provided for the former period. Additional allowances are provided for the aged, infirm, etc.

The order further provides that every person dealing in or selling coal in quantities exceeding 2 cwts. at one time shall register with the Controller. Each local authority shall appoint a Local Coal Overseer whose duty it shall be to report to the Controller on the requirements for the storing, handling, delivery, and retailing of coal within his district and to recommend whatever improvements he finds necessary to safeguard the interests of consumers. The Local Coal Overseer also has charge of reserve stocks of coal. After October 1 no coal is to be sold or purchased except under a written requisition giving the existing stock available to the consumer. Special provisions are made to promote the selling of coal in small quantities and every encouragement is given to small dealers to continue in business.[1]

The following table shows the maximum prices per net ton for household coal to consumers in London as issued in

[1] *The Iron and Coal Trades Review*, 1917, pp. 161 ff.

February, 1918, by the Mines Department of the Board of Trade:

Best selected house coal	39*s.* 6*d.*
Silkstone or seconds	37*s.* 6*d.*
Derby brights	36*s.* 6*d.*
Best kitchen, best cobbles or nuts	36*s.* 6*d.*
Hard cobbles or kitchen nuts	34*s.* 6*d.*
Stove coal	33*s.* 6*d.*

ZONING SCHEME

One of the most far-reaching changes brought about by the Controller is the so-called Redistribution Scheme, the purpose of which is to economize transport facilities by securing the consumption of coal as near as possible to the point of production. The necessary powers were provided by the Coal Transport Order of July 4, 1917. Long-distance and cross hauls are prohibited. The country is divided into twenty zones, to each of which is allocated a definite source of supply. The District Coal and Coke Supplies Committees were appointed to administer the provisions of this order. It was estimated that this arrangement would effect a transport saving of 700,000,000 ton miles annually.

The results attained by this zoning scheme appear not to have been entirely satisfactory.[1] It seems that the immediate effect of the order was widespread disorganization and complaints of short supplies and unsuitable deliveries. By more elastic methods of administration, however, conditions gradually appear to have improved. In accordance with secs. 2 and 3 of this order every contract of sale was abrogated on September 8, 1917, in order that a re-allocation of the supplies of coal might be effected.

CONTROL OF COLLIERIES

A comprehensive scheme of colliery control was effected by the Coal Mines Control Agreement (Confirmation) Act of January, 1918. In its original form and before it was enacted into law, this agreement was the subject of four months of negotiation between the Controller and representatives of the Mining Association. This law authorizes the Controller to take over in whole or in part

[1] *The Statist*, 1918, pp. 136 ff.

the management either of all coal-mining undertakings generally or of the undertakings in any particular district or of individual undertakings.

A feature of this act is a compensation scheme whereby colliery owners are to be paid a compensation in full satisfaction of all claims arising out of government control of the mines. The pre-war output is adopted as the standard output, and the pre-war average profits as standard profits. If the pre-war output is maintained, the standard profit is guaranteed, whether a colliery makes it or not. If the profits fall below this average, the difference will be made good by the Controller. When collieries fail to maintain their pre-war standard output, their profits will be reduced, but not quite in proportion to the decreased output.

The profits of the operators are limited in the most favorable cases to £200 plus 5 per cent in excess of pre-war profits. The remaining 95 per cent of the excess profits must be paid to the government—80 per cent in the form of Excess Profits Duty and 15 per cent as Coal Mines Excess Payments. This latter 15 per cent is to be used for the compensation of collieries that are unable to make their standard profits and to defray the administrative expenses of the Controller's Department. Excess profits are collected by the Commissioner of Internal Revenue.

The act provides that the owner of every colliery shall keep and furnish to the Controller at such times and in such form as the latter may determine such cost accounts, trading accounts, balance sheets, and other accounts as the Controller may require audited; and they must be verified in such manner as he may direct. The Controller, or any person appointed by him, may require the owner or any officer of a mine to furnish any information which may be reasonably required. All information thus obtained must, however, be treated as confidential. No dividends shall be paid and no bonus repaid in respect to any mine without the consent of the Controller. In case of any dispute arising under this agreement between the Controller and the owner not otherwise provided for, an arbitrator appointed by the Lord Chief Justice shall arbitrate the same. If an owner intends to close or abandon a mine he is required to give sixty days' notice. When the Controller closes a

mine the cost of maintaining and reinstating it does not fall on the state, but may on the application of District Associations be met by a levy on the district or group of districts in which it is situated. While mine operators' profits will be considerably curtailed under this law, it is quite generally conceded that they have made very substantial profits during the war, especially up to the time when the allowance of 1*s.* 6*d.* per day to the miners began and when the cost of supplies began to increase.[1]

Still more drastic regulations, interfering in part with technical details of colliery workings, were announced by the Coal Controller on March 16, 1918. This latest order provides that no owner of a coal mine shall without previous notice to the Controller of Coal Mines incur any expenditure on sinking, widening, or deepening of shafts; on making or driving of slants or adits; opening or reopening of seams; erection or acquisition of any additional buildings, plant, or machinery not strictly required for the purposes of repair or maintenance.

The order provides further that no owner of a coal mine shall without previous written authority of the Controller of Coal Mines increase or decrease wages or bonus of mine officials or work people otherwise than in accordance with the awards or agreements of conciliation boards or other duly constituted machinery for regulating rates of wages.

PRODUCTION DURING THE WAR

One of the chief objects of government control in England has of course been to maintain the output of coal. The following table shows the annual production of coal in Great Britain for the past five years:

Year	Gross Tons
1913	287,698,617
1914	265,664,393
1915	253,206,081
1916	256,348,351
1917	248,473,119

From the foregoing figures it will be seen that the production of coal mined in Great Britain during the war has decreased con-

[1] *The Economist*, 1917, p. 287.

siderably as compared with the pre-war output. The production for the year 1917 amounts to approximately 40,000,000 tons less than the production for 1913, while the production for 1917 amounts to a decrease of 7,875,232 tons as compared with 1916. This decrease in output is attributed to the following causes: (1) labor shortage caused by enlistment, (2) lack of timber, (3) transportation difficulties, (4) strikes.

Labor shortage was the primary cause for the decline in production. In 1916 over 25 per cent of the men employed about the mines had enlisted for military service. This decrease in labor reflected itself immediately in a corresponding reduction in the output of coal, the production in 1914 being approximately 22,000,000 tons below that of 1913, while in 1915 it dropped about 34,000,000 tons below the production of 1913. In order to increase the output about 16,000 miners were exempted from war service and brought back to the mines.[1] Largely as a result of this the production of 1916 increased slightly over that of the preceding year, the increase amounting to about 3,000,000 tons. In 1917 there were 1,021,340 persons employed at the mines, amounting to a decrease of 106,558 on the pre-war year of 1913 but an increase of 23,277 persons on the figures of 1916. In many cases the places of young and vigorous trained men were taken by other workmen who came into the coal fields but who were much less efficient than the trained miners who had enlisted. Then too difficulty in obtaining coal-mining machinery and scarcity of skilled labor for working the machines held down production, so that last year's output was the lowest since the beginning of the war.

The timber shortage was mainly a scarcity of pitwood needed for propping up roofs in the mines. This scarcity was brought about by the curtailment of the importation of pitwood in order to economize shipping tonnage. To remedy this situation the government promoted the organization of Pitwood Associations, seven of which have been formed, to develop and make accessible the supply of home-grown timber. A Controller of Timber Supplies was appointed who has charge of supplying the collieries with pitwood and other necessary timber. Maximum prices were

[1] *Parliamentary Debates*, March 27, 1917, p. 278.

fixed for pitwood timber and stocks were limited to twelve months' future consumption.[1]

Transportation difficulties kept down production in certain coal fields. In Wales, in the north of England, and in Scotland collieries have been able to work only irregularly owing to want of shipping to take away the cargoes for which licenses had been issued. In November, 1917, the executive of the Miners' Federation of Great Britain came to an agreement with the Coal Controller to secure greater mobility of labor employed in the coal mines during the war. Bureaus were established in various mining districts for the purpose of facilitating the removal of miners from districts where the mines are overcrowded, and from those places where there is irregular work and waste of man's producing power owing to shortage of shipping tonnage or railway cars available to haul the coal away. The men who remove from one district to another are to get the wage of the district which is higher, and in addition a subsistence allowance including railway fare. There are varying scales for married and single workers.[2]

Labor disputes and resulting strikes constituted a very important factor in keeping down the coal output. In 1916 there were 67 strikes in the coal mine fields, involving 61,611 work people. The duration of the disputes amounted to 310,600 working days. Conditions in 1917 were worse, for the number of strikes amounted to 116, involving 267,045 people and 1,098,400 working days.[3] By referring to the annual production statistics given on page 594 one will readily see how these strikes are reflected in the decreased output of coal.

As a result of war conditions the powers of the Conciliation Boards have been virtually paralyzed. In the earlier stages of state control it was intended to retain as much as possible of the local machinery governing the relations between employers and workmen—the Conciliation Boards and their powers were to be respected and their decisions enforced. There were no other agencies by which discipline could be maintained. All this has

[1] *The Iron and Coal Trades Review*, 1917, pp. 163 and 541.

[2] *Ibid.*, 1917, p. 541.

[3] *Ibid.*, 1918, p. 60.

changed. In most of the coal fields the Conciliation Boards and their agreements have ceased to count. The men carry their disputes to the Board of Trade or the Committee of Production and simply repudiate any obligation to submit wage differences to the decision of the boards. In consequence of this state of affairs discipline is said to have been completely undermined.[1]

Miners' wages have been increased considerably since government control was established. Beginning with September 17, 1917, the so-called "war wage" was granted, amounting to an increase of 1*s.* 6*d.* a day for each day on which a man works or is ready to work and able to do work, and 9*d.* a day for boys under 16 years old. A feature of this arrangement is that increases are paid men when the mine is idle for lack of trade. This was done to give some relief to miners in the export districts where shipping losses cause irregular work. In 1916 the rates of wages of 865,000 workers in the coal regions were changed, the net increase in weekly wages amounting to £227,000. In 1917 the wages of 1,000,000 mine workers were increased, the increase in weekly wages amounting to £437,200.

EXPORT OF COAL

In the history of British commerce coal plays an all-important part, the foreign trade of Great Britain in the past having been in no small measure maintained on the basis of coal exports. Coal forms the bulk of British outward cargoes, in 1913 the estimated weight of all British exports amounting to 97,000,000 tons, of which about 76,500,000 tons was coal. By taking on cargoes of coal for export to overseas British shippers were able to bring back raw materials needed by British industries. By filling the ships both ways freight rates were reduced, and this meant for British industries lower costs of production and of marketing.

Prior to the war a feature of the British coal trade was the steady increase of foreign demand over home consumption. The war has changed this completely, for it has brought on an increase in home consumption, while export shipments have decreased. The two chief causes which brought about this change are abnormal

[1] *The Economist*, 1917, p. 527.

expansion in home markets to meet requirements for war and increasing shortage in the world's supply of tonnage.[1]

The following table indicates the home consumption of coal as compared with the export trade in coal from 1913 to 1917:

	Home Consumption	Export Shipments
1913	191,000,000	97,719,996
1914	184,500,000	81,027,000
1915	193,000,000	59,952,000
1916	201,000,000	55,001,113
1917	201,000,000 (estimated)	51,341,487

If the export figures given above for 1913 are taken as a standard it will be seen that the British coal export tonnage has been reduced nearly half since the beginning of the war. In comparing the export figures with the production tonnage it will be seen that while in 1916 approximately 35 per cent of the tonnage produced was exported, in 1913 the coal exports amounted to only about 20 per cent.

Under government control the sole consideration with respect to the coal export trade was to meet the needs of home consumption and those of the allied countries. Neutrals were permitted to purchase only such quantities as state policy would allow. This involved great sacrifices to certain producing districts. Thus the Welsh district was obliged to give up the South American trade, which before the war amounted to more than 5,000,000 tons a year.

For the last three years the question of ocean freight rates has been a very serious factor in the export trade. While the rates allowed British vessels were subject to fixed schedules, regulated by the government, scarcity of tonnage and war risks resulted in excessive freight rates by neutral vessels. The following table indicates the average freight rates per ton in 1914 as compared with current rates in 1916:

	1914	1916
For Barcelona	9*s.* 4½*d.*	£17
For Port Said	9*s.* 7½*d.*	160*s.*
For River Plate	14*s.* 3 *d.*	130*s.*
For Gibraltar	7*s.* 9½*d.*	100*s.*

[1] *The Statist*, 1918, pp. 136 ff.

AFTER-THE-WAR PROBLEMS

Fully recognizing the important bearing of the coal industry upon Great Britain's future position as a world-power the British Government already has initiated comprehensive plans for the development and expansion of the British coal industry in connection with industrial reconstruction after the war.

Three committees or boards under the British Ministry of Reconstruction are working along these lines. The first is the Coal Conservation Committee. The purpose of this body is to consider and advise (1) what improvements can be effected in the present methods of mining coal with a view to prevent loss of coal in working and to minimize the cost of production; (2) what improvements can be effected in the present methods of using coal for production of power, light, and heat, and of recovering by-products with a view to insuring the greatest possible economy in production and the most advantageous use of coal; (3) whether, with a view to maintaining Great Britain's industrial and commercial position, it is desirable that any steps be taken in the near future, and if so, what steps, toward securing the development of new coal fields or the extension of coal fields already being worked.

This committee has already issued an interim report which deals with the extent to which conservation of coal will effect economy in the production of motive power and other forms of energy, with the resulting expansion of industry and with the steps necessary to attain these objects. The committee emphasizes the fact that 80,000,000 tons of coal are consumed yearly in the production of motive power in Great Britain, and finds that if the power supply in Great Britain were dealt with on comprehensive lines and advantage taken of the most modern engineering developments, the saving in coal throughout the country would in the near future amount to 55,000,000 tons annually on the present output of manufactured products apart from a possible saving on domestic coal consumption.[1]

[1] The following comments in a recent number of a British journal (*The Statist*, March 2, 1918, p. 358) merit attention. In discussing lessons that have been learned from the war in so far as the British coal industry is concerned, the writer states: "One lesson is the great value of coal as a local and national asset. Another is that

V. OTHER EUROPEAN COUNTRIES

In the neutral countries—Sweden, Norway, Denmark, Holland, and Switzerland—the coal situation has become more and more difficult as the war continues. The manufacturing industries have been seriously paralyzed, and widespread suffering has been occasioned among household consumers by the unprecedented fuel shortage. These countries are almost wholly dependent upon Great Britain and Germany for their coal supply, but neither of these two countries has furnished them with anything like a sufficient supply. Only on very exacting conditions were limited fuel supplies to be had.

In Holland the Royal Coal Distribution Bureau has charge of the distribution of coal to the more important industries. Local fuel committees under the direction of the burgomasters supervise distribution in the provinces and towns.

In Switzerland the coal imports are controlled by the Central Office for the Supply of Coal, which has its headquarters at Basel. Maximum prices for imported coal in carloads were fixed by a decree of the Swiss Political Department, March 7, 1917. The imports of coal into Switzerland have been as follows during the past five years:[1] 1913, 3,379,000 tons; 1914, 3,108,000 tons; 1915, 3,311,000 tons; 1916, 3,151,600 tons; 1917, 2,286,000 tons. Approximately 90 per cent of the Swiss coal imports came from Germany. As a result of the serious coal shortage during the winter of 1917–18 the gas supply in the cities had to be cut down to a minimum and railroad traffic had to be greatly reduced. In Switzerland, as in Norway and Sweden, large water-power resources have

the old-time internecine competition and undercutting of prices mean wasted material and effort. A third is that the by-products of coal are an invaluable source of wealth, which has been shamefully neglected, and which must be tapped at home by patent recovery coke ovens all over the district. A fourth lesson is the need for a larger outlook—for imperial coal trade routes and depots, for cheaper ocean transport and co-ordinated facilities for handling coal from the pit's mouth to the port of shipment and from the port of shipment to its destination abroad. The coal export trade of the future promises to centre in larger and stronger hands which will combine and gather under associated control the functions of raising, shipping and selling coal, so that the whole business can be conducted on a larger scale, at a smaller cost, and with a maximum of efficiency."

[1] *L'Economiste français*, 1918, p. 458.

been utilized and are being developed to compensate for the shortage of coal.

In Sweden the fuel situation has become so critical during the war that the National Fuel Commission has commandeered all combustibles, including coal, coke, wood, and benzine. Coal and coke cards have been introduced, but they cover only about one-seventh of the normal consumption.[1] Owing to the scarcity of coal many railways and steamers are burning wood. The state is promoting the production of peat briquettes on a large scale. In the Swedish coal trade a general tendency to combine has been noticeable, and in Stockholm a concern has recently been incorporated, the A. B. Kol and Koks, with a capital of five and one-half million crowns, to concentrate that city's trade in coal and coke.[2]

Spain is one of the countries whose coal production has slightly increased during the war, although it is not sufficient to supply the domestic demand. The total production of bituminous, anthracite, and lignite coal has increased from 4,424,439 tons in 1914 to 5,588,594 tons in 1916, and the production for 1917 is estimated to be in excess of that of 1916. A significant development in connection with the coal industry of Spain is the formation of the National Coal Mining Council (Consorcio Nacional Carbonero), which embraces all the coal-mine owners of the country. It was organized under a royal decree of July 12, 1917.[3] Under this decree all coal operators are combined into regional syndicates, which are represented by a total of 12 delegates, one for every 500,000 tons of production, in the Council. The latter has an official character and includes in its membership representatives of several government departments. The president of the Council is appointed by the government. According to the decree the principal objects of the Council are to increase production, to build railways, docks, and storage plants, and to regulate distribution and prices. Through a government bank the Council is to be subsidized. This is the first instance of a compulsory national coal

[1] *The Economist*, 1917, p. 39.

[2] *The Americas*, 1917, p. 18.

[3] *Gaceta Madrid*, July 14, 1917.

syndicate with state participation along the lines of the Italian Sulphur Syndicate.

Russia like France has lost, for the time being at least, some of her largest coal-producing districts. The loss of the Dombrava coal field in Poland amounts to an annual loss in coal production of about 7,000,000 tons. The output of the Donez basin has decreased during the war to more than half of its normal production. The shutting off of British imports via Baltic ports and the Black Sea has further increased the coal shortage of Russia so that only about 20,000,000 tons of domestic production remain for that country's consumption. Throughout Russia oil, wood, and peat have quite generally replaced coal.

The Italian coal situation became acute with the country's entrance into the war. Formerly Italy got the bulk of its coal supply from Germany. During the past two years Great Britain supplied the bulk of Italy's coal, the imports of fuel amounting to about ten million tons in 1916 and slightly more in 1917. In 1916 the United States exported 1,770,668 tons of coal to Italy, in 1917, only 566,069 tons. High freight rates resulted in exorbitant coal prices until an arrangement was made with Great Britain by which maximum freight rates were fixed. At the same time maximum sales prices were established for imported coal by the director of the National Fuel Commission, De Vito.[1] The same decree of December 31, 1916, which established maximum prices provides further that retail coal prices shall be fixed by the prefects and that retailers' gross margins shall not be in excess of 5 lire ($1.00) per ton.

Prior to 1914 not much coal was produced in Italy, but the great scarcity of coal since coal shipments from Germany ceased resulted in an increase in domestic production. In 1916 there were 148 coal mines active as against 59 in 1915, and the domestic production of lignite increased from 939,027 metric tons in 1915 to 1,282,819 in 1916, while the production of anthracite increased from 9,314 tons in 1915 to 18,544 in 1916. Freight rates on coal from Cardiff to Genoa had increased from 7*s.* per ton in July, 1914, to 26*s.* in May, 1915, and to 80*s.* in 1916.[2] In exceptional cases,

[1] *Collezione Celerifera delle leggi*, etc., Roma, January 20, 1917, pp. 47 f.

[2] *Journal des économistes*, 1918, pp. 190 ff.

it is reported, coal retailed as high as $120 per ton. A Commissioner General for Fuel was appointed by a special decree of August 5, 1917.[1]

VI. AUSTRALIA

In view of the fact that legislation in Australia is "advanced" to a degree unknown elsewhere in the world, a brief review of the price-fixing laws and other wartime legislation affecting the coal industry is of interest. The parliaments of all the Australian states, with the exception of Tasmania, early passed price-fixing legislation, and within two months of the commencement of the war tribunals with varying degrees of power were appointed to administer the several acts.[2]

In New South Wales the Necessary Commodities Control Act of 1914 provided for a commission of three to inquire into and to report as to what should be the highest selling prices of any "necessary commodities." Under this act coal, firewood, and other fuel were defined as "necessary commodities." On the report of the Commission, the Governor in Council fixed maximum prices, and the results of the work of the Commission, which had all the powers of the Supreme Court of the State, and a large staff of officers and inspectors were much more far-reaching and extensive than elsewhere in Australia.

In Queensland the Control of Trade Act of 1914 was almost identical in terms with the above-mentioned law of New South Wales. In Victoria the Price of Goods Act of 1914 lapsed for political reasons.

The Prices Regulation Act passed by the South Australian legislature in 1914 provided for a Price Regulation Commission of three members who were authorized in their absolute discretion to declare any commodity to be a necessary of life within the meaning of the act. In case any person failed to sell goods at the fixed price the goods became liable to forfeiture to be paid for at the fixed price.

The Control of Trade in War Time Act, 1914, of the State of Western Australia lapsed in 1915 and was not re-enacted.

[1] *Gazz. Uff.*, 9 agosto, 1917.

[2] H. L. Wilkinson, *State Regulation of Prices in Australia*, 1917, pp. 24 ff.

In 1916 the War Precautions Act was passed by the Federal Parliament and the Federal Government announced the power to control the prices of commodities under this act. A Price Fixing Commission was appointed to each state to assist and make recommendations as to prices. These, after being co-ordinated by a central department, formed recommendations on the basis of which prices were fixed through the Governor-General.

In November, 1916, a coal miners' strike occurred throughout Australia, and a complete stoppage of mining operations resulted. A special board, consisting of a Judge of the Supreme Court, was appointed by the Commonwealth Government to settle the hours of labor, wages, and working conditions, and at the same time fix the selling price of coal. A decision in favor of the striking employees was given by the judge, and the employers acquiesced, as the increased cost of mining that would result from the decision was to be compensated for by the board fixing the selling price of coal at such an increased rate that their profit was assured. The selling price was fixed after inquiry as to the cost of putting coal on the market and after making a fair allowance for profit.

On August 20, 1917, the War Precautions (Coal) Regulations[1] were promulgated which authorize the Minister of State for the Navy to appoint coal boards which are to regulate the supply of coal in the Commonwealth. Under these regulations all persons, firms, or companies possessing more than five tons of coal or coke must report the quantity and place of storage. Coal and coke shall not be sold or supplied to anyone for any purpose whatever without the written consent of the Minister for the Navy or the Coal Board. All stocks of coal in excess of five tons are subject to being turned over on written notice from the Minister or Coal Board to any other person, firm, or company specified in the notice, on payment of cost, including delivery charge, plus 10 per cent on such cost. All electric light and gas companies are prohibited from supplying electric current or gas for industrial purposes without written consent from the Minister or Coal Board.

[1] Australia, Statutory Rules, 1917, No. 195.

VII. CANADA

The coal situation in Canada in the course of the present war has had many points of similarity with conditions that developed in the United States during the same period. Transportation difficulties, coal shortages, and high prices in the chief centers of consumption developed almost parallel in both countries. This was caused largely by the close dependence of the great central provinces of Ontario and Quebec, the chief centers of population, upon the coal fields of Pennsylvania and Ohio for their coal supply. Notwithstanding the enormous coal resources of Canada, over 50 per cent of her domestic consumption is imported from the United States.[1]

Table IV shows the imports of coal from the United States to Canada from 1913 to 1917.

TABLE IV

	1913	1914	1915	1916	1917
Bituminous	10,743,473	7,776,415	6,474,683	9,514,552	15,537,262
Anthracite	4,642,057	44,435,010	4,077,192	4,570,815	5,320,198
Coke	723,906	553,046	637,857	757,116	1,231,865
Bituminous dust	2,816,423	2,509,632	2,580,141	3,505,236	.....

From the following figures it will be seen that the coal production of Canada has constantly decreased during the past five years: 1913, 15,012,178 tons; 1914, 13,637,529 tons; 1915, 13,267,023 tons; 1916, 14,483,395 tons; 1917, 14,015,588 tons.

In 1916 a government investigation of the coal situation was made under Order in Council No. 2777,[2] the results of which are contained in a report submitted to the Minister of Labour by W. F. O'Connor.

The objects of the investigation were to discover (1) whether the commodity was being unduly accumulated in the hands of the dealer, thus producing an artificial scarcity and an enhanced price; (2) whether the commodity was being offered for sale and being

[1] *The Production of Coal and Coke in Canada during the Calendar Year 1916*, Ottawa, 1917, p. 1.

[2] *Labour Gazette*, December, 1916, p. 1848.

sold by dealers at a fair price; and (3) whether any combines, local or other, existed among dealers for the stifling of competition by the fixing of a common price.

We quote the tables of costs for anthracite coal, as published in the report, for Montreal and Winnipeg respectively (Tables V and VI).[1]

TABLE V

MONTREAL

	1913	1914	1915	1916
Cost, f.o.b. at mines	$3.29	$3.32	$3.32	$3.53
Freight	2.70	2.72	2.72	2.73
Receiving costs, overhead and fixed charges	1.50	1.65	1.70	1.95
Total	$7.49	$7.69	$7.74	$8.21
Selling price	8.00	8.25	8.25	8.55
Profit	$ .51	$ .56	$ .51	$ .34

TABLE VI

WINNIPEG

	1913	1914	1915	1916
Cost, f.o.b. at mines	$3.40	$3.40	$3.40	$3.65
Freight	4.40	4.40	4.40	4.40
Reshipping charges and loss through shrinkage and degradation, Port Arthur and Fort William	.80	.80	.80	.85
Overhead, fixed, and delivery charges	1.30	1.40	1.50	1.65
Total	$9.90	$10.00	$10.10	$10.55
Selling prices	10.75	10.75	10.25	11.15
Profit	$ .85	$ .75	$ .15	$ .60

The conclusions reached in the report were:

1. There was no evidence of undue accumulation at any time since the beginning of the war. Instead there was a general scarcity during the season of 1916–17, and at some places there prevailed at times almost a famine.

[1] *Labour Gazette*, June, 1917, pp. 479 ff.

2. Generally the prices charged had been fair. High prices had been imposed, but these were necessary on account of the high cost to the dealer.

3. There was no evidence of any general combine, but ample evidence of local combines made up of nearly all the local dealers in practically every city in Canada. The report states, however, that although such combinations were illegal their object had not been to enhance prices, but rather to avoid price-cutting wars and to stabilize prices.

The partial failure of the railroads to meet the situation, according to the report, was probably the main cause of the shortage, and governmental action in this respect is declared to be necessary to insure sufficient transportation.

GOVERNMENT CONTROL

The abnormal conditions in the Canadian coal trade which developed during the winter of 1916–17 finally resulted in government control. By the Order in Council of July 12, 1917, C. A. Magrath was appointed Fuel Controller for Canada with his office at Ottawa. Regulations governing the importation and sale of coal were issued by the Fuel Controller on October 26, 1917.[1] These regulations form the basis of all subsequent government action with respect to the coal industry and trade.

The main features of these regulations are as follows: (1) Every importer, broker, wholesaler, or retailer of coal must procure a permit from the Fuel Controller for authority to do business. The Controller may cancel or suspend any permit in case of short weight or for other sufficient cause, as to which he is sole judge. (2) Maximum mine prices shall be fixed upon agreement between the Fuel Controller and the coal operators. In case any operator fails to make an agreement satisfactory to the Fuel Controller the latter may himself fix the maximum prices and prescribe other terms and conditions governing the disposal of the output of the mine. (3) Brokers' commissions shall not exceed 30 cents per net ton, while wholesale dealers shall be allowed a net margin not exceeding 35 cents per net ton. The retailer's net margin is fixed at 50 cents

[1] *Canada Gazette*, Ottawa, October 31, 1917.

per net ton. Both wholesalers and retailers shall be allowed a reasonable charge for handling, overhead expenses, and fixed charges. (4) The maximum price at which any size and grade of coal may be sold by a wholesale or a retail dealer during the first half of each month shall be the average delivered cost price to that dealer for the same grade and size of coal on hand on the first day of that month, plus a reasonable proportion of the cost of handling, overhead expense, and fixed charge plus the maximum wholesaler's or retailer's net margin. For the second half of the month the maximum price shall be based upon the average cost of coal on hand on the sixteenth day of the month. (5) Coal sales to consumers, with certain exceptions (railways, munition plants, asylums, hospitals) shall be limited to a two months' supply during the period from September 1 to April 1. (6) In case of emergency the Fuel Controller is authorized to requisition certain quantities of coal. (7) The Fuel Controller shall have access to all records of producers, dealers, and importers, and is to be supplied by them with all information required by him.

Further regulations, issued by the Fuel Controller on March 15, 1918,[1] provide that the government of each of the provinces of Canada may appoint a Provincial Fuel Administrator or Board of Administrators and such central provincial organization as may be deemed necessary. The duties of Fuel Administrators shall be:

a) To supervise the distribution of all coal and fuel.

b) To develop the demand for and supply of wood and other coal substitutes to the greatest possible extent.

c) To promote and administer any organization prescribed by the Fuel Controller.

d) To gather and compile statistics dealing with the production and consumption of fuel of all kinds within the province.

e) To promote the greatest development of any coal areas available within the province.

f) Generally to assist and advise the Fuel Controller.

The regulations further provide that the Council of any municipality may appoint a Local Fuel Commissioner or Board of

[1] *The Canada Gazette*, Ottawa, March 21, 1918.

Commissioners whose duties shall be to co-ordinate the work of fuel dealers in apportioning and delivering coal during any period of fuel scarcity, and to institute when necessary a system of controlling retail coal deliveries.

VIII. LATIN AMERICA

All of the Latin-American countries depend upon oversea countries for their coal supply. Very little coal is produced in South and Central America. There are small coal fields in Chile with a limited annual production which is not sufficient to supply that country's domestic consumption.[1] Coal seams discovered in Bolivia, Colombia, Ecuador, and Brazil have not been exploited as yet on a large scale.

In the past most of the coal imported into South and Central American countries came from Great Britain, and constituted one of the most lucrative elements of that country's foreign trade. Coal of excellent quality, superior shipping facilities, low freight rates, and a powerful and well-organized business organization domiciled in all the leading ports of Latin America have contributed to establish Great Britain firmly as the leading coal supplier of Central and South America.

During the present war British coal exports to South Atlantic ports have been greatly reduced. On the other hand, coal shipments from the United States have increased in tonnage and a promising beginning has been made of what may in course of time develop into a good export market for American coal. Table VII illustrates the exports of coal in tons from the United States to some of the leading Latin-American countries.

The reduced receipts of coal shipments from oversea countries have caused a serious coal shortage to develop throughout Latin-American countries which threatens the carrying on of the industrial activities and seriously discomforts private persons.

In 1914 Argentine's imports of coal were 3,421,517 tons; in 1915 they amounted to 2,543,887 tons, or nearly a million tons less; and in 1916 and 1917 they were reduced still more. In order to

[1] *South American Journal*, December 25, 1915.

relieve the increasing fuel shortage, the government made an inventory of coal stocks and has urged the use of quebracho wood, peat, lignite, and oil for fuel purposes. In view of the fact that the stock of coal in the country is insufficient for national requirements, the government issued a decree putting into force again Law 9482 allowing merchant steamers leaving Argentine ports for oversea destinations to take away only as much coal as is needed to reach their first port of call in South America.[1] Freight rates have also been a very troublesome factor in the coal situation. British coal, when obtainable, costs less in freight than American coal.

TABLE VII

	1913	1916	1917
Argentine	70,048	928,905	329,535
Brazil	279,933	785,381	687,372
Chile	.....	260,468	399,466
Colombia	.....	10,165	11,906
Cuba	1,275,538	1,333,961	1,385,126
Ecuador	.....	22,609	16,025
Guatemala	.....	12,950	1,010
Honduras	.....	12,768	10,648
Jamaica	.....	57,830	71,330
Panama	489,761	425,133	620,838
Peru	.....	63,510	46,768
Uruguay	16,858	153,177	60,410

The coal shortage in Argentine and Brazil has caused the railway companies of those countries to substitute fuel oil, which is imported from Mexico, on their locomotives. In Brazil the government has recently made large loans to railway and coal-mining companies in order to stimulate the development of that country's coal resources.[2] In order to control the available coal supplies better than heretofore, a government Coal Supply Board was recently created.[3] This Board, which has its main office at Rio de Janeiro, is composed of a representative of each of the ministries of Finance, Public Works, and Marine, and is authorized to appoint repre-

[1] *Review of the River Plata*, March 30, 1917.

[2] *Commerce Reports*, 1918, p. 729.

[3] *Diario Official*, February 8, 1918.

sentatives in different cities of the country. The Board is charged with the direct purchase in foreign markets of as much coal as is permitted to be exported and of all the national coal which, with due respect to existing contracts, it is possible to obtain. It will also advise the government on the requisitioning of existing stocks of coal, and attend to applications for coal made by the Brazilian navy, public utilities, navigation companies, industrial enterprises, and individuals.

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[*To be continued*]

THE REQUISITES OF A NATIONAL FOOD POLICY

I. THE NATURE OF THE PROBLEM

It is a commonplace that wars require the efforts of all the people of the nations involved. The effective prosecution of so unusual a business necessitates the use of old and young, of man and woman; of brawn and brain, of habit and nerve cell; its success is contingent upon an organization of the bewildering variety of tasks which make up the industrial life of a nation into an articulate system which has a single objective. The army which engages an enemy three thousand miles from home is the cutting edge of a vast and gigantic machine which ramifies unto the utmost confines of the land and apportions tasks to all sorts and conditions of men. To push to success the military program, or even to frustrate the designs of the enemy, the fighting force must be fed, clothed, sheltered, and provided with a minimum of amusement and recreation. It must also be supplied with a countless number of instruments and materials which the machine-technique has made essential to modern arms. This supply must be adequate and continuous; it must be adapted to the exigencies of military strategy; its elements must be in proper proportion to each other. Further, the number of men sent to the front must be as large as can be withdrawn from industry and maintained there and the materials supplied must attain the nation's maximum.

This industrial problem of the organization of supplies is an aspect of the larger problem of general strategy. The aggregate of supplies required, its resolution into its various component commodities, and the problem of securing these are all dependent upon the larger military purpose. Yet at first blush the problem seems simple. One's experience in business, large or small, tells him that money is the indispensable means to the goods he craves. If he possess it, he can have even unto abundance; if he has it not, he must go empty and void. By analogy he concludes that money will of itself enable the government to supply its many and varied

wants and he tucks the enigmas of supply away within the confines of the perplexing problem of war finance. But further consideration shows that money is not the thing which is needed; that, since even to the wise the way of expenditure may be the road to folly, it is at best a very uncertain means to an end. Moreover it shows that in at least two very important respects the nation's needs are unlike yours or mine: first, it requires goods in unprecedentedly large quantities, and secondly, it demands many goods which the market does not supply. It asks of the industrial system what it has not been in the habit of furnishing.

But, in spite of the volume and novelty of the demand, many think that by ordinary purchase supplies can be obtained. They know that supplies of goods are constantly being increased to meet new demands; they know that new products are constantly being offered when the market is ready for them; they know that these things happen without collective thought on the part of society or collusion by the officers of the state. So they conclude that by bidding high enough the government can persuade private enterprisers to turn out the goods which it requires. Perhaps eventually the requisite supplies might be obtained in this way. But it is a way beset not only with difficulties but with national peril. It involves an unnecessarily high expense, for very high prices are required to tempt men to tie up their capital in enterprises when a sudden termination of the war may render much property obsolescent. Besides, there is no calculated profit to determine how high a governmental department can bid for commodities, and experience testifies that prices go to unusual heights, driven by the competition between various departments of the government for a supply of mobile labor and materials smaller than their total demands. Even more important, much valuable time will be lost before the rate of production can properly be synchronized with the military program and the several volumes of the complementary goods necessary to it can be properly adjusted to each other. Since time and economy are of the essence of victory, it is unwise to leave the problem to the caprice of the price-system. Instead a carefully devised program with a clearly defined end seems imperative. This program must aim at a readjustment of an industrial system

which has grown up to meet the needs and whims of a people at peace with the world to the newer demands imposed by war. It must transform an industrial system which involves the materials, processes, and aims of economic life and stretches away from the production of the most elementary of raw materials at one extreme to the habits and fancies of the people at the other.

The food problem has its place as a part of this larger program of adjusting the industrial system to the demands of war. In the various aspects of its readjustment of consumption, production, and distribution of food, it affects profoundly the interests and the efficiency of the people at home and the soldiers at the front. The amount of food which must be produced depends upon the triple demand of the people at home, the civilian population of our allies, and the forces in the field. Its distribution involves numerous and baffling choices between conflicting interests. Its consumption requires the scrapping of the personal habits of a lifetime and the substitution therefor of others formed in the light of military necessity. The character of the program depends upon the duration of the unusual food conditions which have come in the wake of war. It is complicated by the varied fortunes which four years of war have brought to our allies. It is affected by dominant tendencies imposed upon the industrial system which the signing of a treaty of peace cannot soon remove. Because of its intimate association with the larger problem of supplies and its dependence upon peculiar circumstance, a statement of the requisites of a food program must wait upon an enumeration of the antecedents to which it must conform. Therefore it seems best, in the pages which immediately follow, to consider: (1) the situation in Germany with a view to the testimony which it gives upon the duration of the current food situation; (2) the peculiar food needs of our principal allies, Great Britain and France, and of the neutral nations of Europe; (3) the tendencies affecting the production of food which are accompaniments of war; and (4) the peculiar requirements laid upon this country. In view of these it will be possible to outline, not in any adequate fashion, but at least in its main aspects, a food policy for the current emergency.

II. THE FOOD SITUATION IN GERMANY

The strength of Germany lies in the adaptation of its industrial system to the exigencies of war. The adoption of the machine-technique made possible a large surplus above the industrial output of the more primitive system which it supplanted. But the ruling caste did not allow this to be wasted in competitive consumption or to be dissipated in increasing the several class standards of living. On the contrary economy and frugality were encouraged among the masses to the end that the greatest possible number of men and the largest amount of material might be freed from regular industrial employment or civilian consumption for military uses. Because the whole industrial system was fashioned with that probability in view, little time was lost after the outbreak of hostilities in converting it into a gigantic, complex, and effective engine of war. The policy that whatever was requisite for success in war should be produced at home meant that all the processes necessary to warfare could be carried on within the country. To the end of the largest possible direct participation in war the discipline of the German has stood his government in good stead, for long ago he learned the double lesson of getting the most out of his resources and of accepting discomfort and even less than a decent living without open revolt. The spirit of protest which hunger engenders in other people is likely in Germany hardly to exceed the bounds of personal discontent, for an effective control of schoolroom, press, and pulpit has successfully inhibited the organization of opinion which is a necessary antecedent to effective group action.

In some respects Germany's food situation is better, in some respects worse, than that of the other European belligerents. It has the advantage of not losing sight of the ideal of agricultural self-sufficiency in the four decades immediately preceding the war and of quickly giving its attention to the serious defects in the organization of food revealed in the earlier months of the war. Evidence of attention to this problem is revealed in the statistics of agricultural progress between 1887 and 1913. During this period population increased from 48,000,000 to 66,000,000, or 38 per cent. Yet from 1887 to 1912 the supply of vegetable foods

increased even more rapidly. The production of rye increased from 5,867,800 to 11,012,861 tons, or 97 per cent;[1] of wheat from 2,585,200 to 3,962,390 tons, or 54 per cent; of potatoes from 25,459,200 to 44,220,200 tons, or 72 per cent; of sugar from 991,000 to 2,590,000 tons, or 251 per cent, and of other food articles from 44 to 114 per cent.[2] At the beginning of the war Germany was producing nearly all the grain, potatoes, and sugar consumed in the country. In respect to meats the situation was by no means so favorable, only one-fourth of the beef, one-tenth of the pork, and one-twentieth of the mutton consumed being of domestic production. We have little direct evidence upon the increase of production—or more likely the decrease—since the beginning of the war, though there is an abundance of indirect evidence of all degrees of reputability. This indicates that despite the use of the labor of prisoners and an attempt to use food resources to produce only commodities of the highest food value conditions have been fluctuating from bad to worse, but with a steady drift toward worse. The best evidence seems to indicate that Germany has at best only about 70 per cent of the vegetable food and certainly not more than 40 per cent of the animal food

[1] To guard against inaccuracies due to the yield of unusual years the comparisons in the text are based upon an average of a number of years at the beginning and at the end of the period. The averages are for three, four, or five years, depending upon the length of time necessary to secure a fair statement for each of the crops considered. Because of this the percentages of increase stated in the text are lower than they would be had the first and last years been normal years and had it been possible to base conclusions upon a comparison of them. The use of a period of years applies also to all the other figures of agricultural production given in the text.

[2] It is impossible in the space available here to give a list of all the materials used and authorities consulted in the production of this article. The literature upon the subject of the food problem is voluminous. At present nearly seven hundred books, pamphlets, and magazine articles are available, and the number of titles is rapidly increasing. The great mass of this literature is, of course, worthless, and much of the important material is presented in books or articles which do not purport to deal directly with the food problem. A large part of the material actually used is listed in a select bibliography of the food problem prepared by the writer and published as a bulletin by the United States Food Administration. The reader who is looking for a statement of authorities is referred to that. The articles and statistical tables referred to there, however, contain only the figures upon which are based the calculations which give the figures used in the text, e.g., the statistics of annual production and consumption, from which the averages presented above have been calculated.

regarded as necessary in time of peace. This shortage is important, however, more as evidence of the large part of the population below the subsistence line than of the success of a policy of attrition in bringing Germany to terms.

But other conditions are affecting the food situation for better or for worse. Germany has never been completely cut off from foreign sources of supply. In the earlier years of the war the Roumanian surplus was available for German use, and there is at least the possibility that next year, if not this year, Roumanian wheat will again find its way into Germany. Frequently it has happened that the campaigns in the east or south which Germany has undertaken in the autumn have resulted in the capture of food supplies. Thus last autumn the seizure of a large supply of wheat in northern Italy was perhaps not altogether an accident. Besides, as we now know, the blockade of Germany has been by no means a success, and a great deal of food has poured in through neutral countries. And last, the extension of the German military lines has added to the country much fertile land. Some of this has already been put under cultivation. The greatest promise is the lands in the East which have either been annexed or have been made accessible by the collapse of Russia. The consensus of opinion among those who know the economic East seems to be that these lands will be of little avail this year. Whether they can be made to furnish a large food supply in 1919 or later depends largely upon the ability of the German government to organize the country for the furtherance of its own purposes.

On the whole the outstanding features of the German situation, so far as they affect the food problem, are two in number. The first is that, in view of German discipline, there is little to expect from a policy of attrition. The policy of the Allies may force an ever larger part of the population beyond the minimum necessary to keep health in the body for physical toil, but it is not likely to starve the population into surrender. If the war becomes an involuntary hunger strike, Germany's powers of endurance are likely to exceed those of any Western nation. The German armies may be kept back, the German government may be driven into bankruptcy, the German morale may be broken, a victory over

German arms may be achieved, but it is safe to say that economic inability to fight is not likely to be a cause of German defeat. So long as the losses in men do not greatly exceed the numbers added to the army by incoming classes, and so long as the industrial system is arranged to supply a large number of men for fighting and materials for them to fight with, the German government may, if it wills, keep up the struggle. The second important fact is that no matter how soon peace arrives a serious food problem will remain in Germany for some years to come. The production is low and disorganized, the personnel on the farms is far below normal, both in numbers and in ability, and for many groups the standards have been driven far below what is necessary for efficiency. Both of these facts point to the necessity of a food program which looks farther ahead than a few months—one that looks even to the problems of the production and distribution of food a decade after peace.

III. THE FOOD PROBLEM IN ALLIED AND NEUTRAL COUNTRIES

At the beginning of the war France was, as it had been for some time, a country of small farms. No less than 45 per cent of the population belonged to the agricultural class. On the eve of the present conflict it was consuming 379,000,000 bushels of wheat, 51,000,000 bushels of rye, 54,000,000 bushels of barley, and 314,000,000 bushels of oats annually. Of these totals 55,000,000 bushels of wheat, 3,000,000 bushels of rye, and 6,500,000 bushels of barley were imported. These and similar figures show that the country was producing approximately 86 per cent of the cereals consumed. A similar calculation indicates that about 85 per cent of the meat supply was produced at home; but in explanation of this figure it needs to be said that in France the normal per capita consumption of meat is only 79 pounds per annum as against 113 for Germany, 119 for Great Britain, and 171 for the United States.

This favorable situation has been radically changed by the war. In the first place, the large percentage of the population engaged in agriculture has caused the draft of fighting men to make larger drains upon agriculture with greater decreases in efficiency than in any belligerent country. In the second place, nitrates for fertilizer

which usually come from Chile have been very hard or almost impossible to get. In the third place, capital has not been available for improvements, depreciation has gone forward at a very rapid rate, and materials which otherwise would have gone into farm machinery have been diverted to war uses. In the fourth place, a very considerable amount of fertile soil has been usurped for military purposes and an even larger amount has fallen into the hands of the Germans.

France has of course resorted to various devices to overcome these tendencies to agricultural decline. The aged and the very young alike have been put in the fields; the labor of men back from the front, of prisoners, and of Chinese coolies has all been used; the production of certain products has been subsidized; and a rigid system of agricultural supervision by prefects has been established. But in spite of all this the supply of food has diminished and is still diminishing. The most reliable computations indicate that nearly, if not fully, 40 per cent of the agricultural area has been lost to cultivation and that the fertility of the most important crop-producing sections has declined by from 20 to 30 per cent. To grasp the significance of this one must note that if France were today to try to maintain its consumptive standards of 1913 it would have to import 60 per cent of its wheat, 48 per cent of its rye, 15 per cent of its barley, and 35 per cent of its oats. This general decrease in the consumption of staple commodities indicates the extent to which standards of consumption have been reduced and how close a considerable part of the population is to actual starvation. Yet the most serious aspect of the situation is that the land and its productive equipment are deteriorating from month to month, and that the tendencies bringing about a decrease are becoming more and more pronounced. Peace will leave France face to face with a serious food problem.

Because of its peculiar industrial organization Great Britain is very unlike France. Economically the British Isles are but the center of a vast industrial system which ramifies to the corners of the earth. It performs a few economic functions for a large part of the world, and other parts of the world perform many functions

essential to the welfare, and even the lives, of the inhabitants of the islands. Most important for our purpose England produces only a very small part of its food supply. Owing no doubt to its gradual development of the machine-technique, the surplus which the machine made possible has gone in large part to maintain higher competitive standards of living. Before the war its normal consumption per annum was far larger, not only in aggregate but per capita, than that of France or Germany. Yet only 3,000,000 bushels of wheat, 4,000,000 of barley, 17,000,000 of oats, and a paltry amount of sugar were produced at home. The small participation in food production indicates clearly enough the necessity under which Great Britain has been placed to keep open at all costs the avenues of maritime commerce. It also indicates alike that the war has decreased very little the food supply of the nation by any direct effect which it has had upon production, and that any increase in production which might be secured by vigorous governmental action cannot affect materially the significant factors in the food situation. In short the national food supply rests upon the double contingency of production in foreign countries and the shipping available for bringing the food to British ports. There is no evidence to indicate that even the countries farthest removed from the seat of the war have escaped the scarcity of materials and implements and the high costs which it has forced upon food production. To make the statement as hopeful as possible we may conclude that none of the countries whence comes the British supplies gives prospect of offering to the warring world a surplus above that available in 1914.

But the crux of the problem is not in production; it is in the shipping situation. The tonnage available for transportation has been greatly diminished by three causes. The first is the diversion of vessels—how large only those in the secrets of the governments can say—to war uses. The second is the large losses through destruction by mines and submarines, losses familiar to every reader of the newspapers. The third is a loss in the number of journeys which a ship can take in a given time, due to circuitous routing to avoid submarines. An attempt has been made to meet the situation by prohibiting the importation of nonessential

commodities. But, in view of the large number of imports for war uses, imports unknown to Great Britain before the war, the places of the nonessentials are filled without supplying sufficient accommodation to take food from the places where it is most plentiful to English ports. Whatever rosy promises ship-building may hold out, at this writing the combined construction in Great Britain and America is not yet equal to the losses caused by submarines. In view of this serious shortage relief can be found only by discontinuing long hauls and concentrating shipping upon routes connecting Great Britain with the countries close at hand.

Such concentration merely solves the immediate shipping problem in terms of another problem of production. It makes the food supplies of South America, Australia, and India less available than they were, and throws an increased burden upon Canada and the United States. This burden becomes the heavier when it is realized that the war has cut off England entirely from some of its important sources of supply. The situation as regards all foods may be clearly set forth in a brief summary of the principal ante-bellum sources of Great Britain's grain supply. Of the total of 11,204,713,700 pounds which was the normal importation at English ports before the war, 16.2 per cent came from Russia. Early in the war the closing of the Bosphorus prevented importations from Southern Russia where the great wheat fields lie, and more recently internal disorganization has stopped shipments from the northern part. The import of 206,563,500 pounds, or nearly 2 per cent of the supply, from Roumanian sources has ceased, while the cessation of imports from Austria, Germany, Italy, France, and the neutral countries adjacent has cut off another 4 or 5 per cent of the supply. Argentina used to furnish 1,487,082,200 pounds, or about 14 per cent of the total, and India and Australia smaller amounts. The supply from Argentina can now be obtained only by using scarce and expensive shipping facilities, and that of India and Australia, because of the almost prohibitive cost of carriage, is beyond reach. There is little likelihood that ships will be available before the war is over in sufficient number to allow a resumption of the old routes of trade and a tapping of the old sources of supply. On the contrary there is every reason for

believing that Great Britain will have to depend upon the nearer sources of supply, particularly upon Canada and the United States, for many years after the coming of peace.

What is true of the seriousness of the food situation in France and Great Britain is true, in their several degrees of the smaller belligerent countries, of their neutral neighbors, and even of non-participating nations far removed from the scene of combat. The great food-producing area is the northern temperate zone, the inhabitants of a large part of which are engaged in the present struggle. The southern temperate zone is of secondary importance. The arctic zones produce only enough for their indigenous populations, and the tropics do not yet produce enough of the staples to satisfy their own needs. Like Great Britain these countries, even though they lie within the great food-producing areas, are not self-sufficient. Italy and Spain, despite great home production, are large importers of grain, and Holland, Denmark, Norway, Sweden, and Switzerland are quite dependent upon imports.

It is characteristic of the war that the great dearth in the good things of life which the diversion of labor, materials, and land to other uses has caused has afflicted neutral as well as belligerent nations. The prices of the essential commodities are relatively steady the world over. A scarcity in one country, due to the war, causes prices to rise, and the higher prices attract goods from other countries in which prices are lower. The movement continues until prices in the exporting country rise enough to make sales abroad unprofitable. In this way countries which scrupulously keep the peace have to share the dearth of nations at war. Conditions alike among the smaller warring nations and among the neutrals indicate that they have their several food problems, problems which are likely to remain acute even after peace is made.

IV. FORCES RESPONSIBLE FOR THE FOOD PROBLEM

It seems unnecessary to elaborate at length the abstract principles which explain the decrease in food production and the emergence of a food problem in the wake of war. Many of the forces responsible for the problem are clearly apparent in the presen-

tation of the situation in France and Great Britain given above. Others are familiar to any student of the nature of modern warfare. A few words of abstract statement must suffice.

The first of two general groups of forces which reduce food production in time of war operate directly upon agriculture. Of this group the first and most obvious is the decrease in number and the decline in efficiency of agricultural laborers. Large numbers are drafted for the army who are habituated to farming just at the ages at which they are most efficient. The old men, the women, and the children who take their places are their equals neither in physical efficiency nor in their knowledge of agricultural methods. Nor can prisoners or imported laborers, who are worked in gangs under supervision by a system which contains many of the devices of slavery and lacks the incentive to efficiency which the free laborer has, be depended upon to secure really satisfactory results. To this depletion must be added the additional host who are drawn to industrial occupations by the lure of high wages paid in establishments engaged in war work. This drain is likely to be very severe in a country which in the past has depended for an urban labor supply upon a stream of immigrants which is now stopped. The scarcity of food among agricultural laborers, the lack of medical attention which comes with war, and the withdrawal of the comforts of peace further lowers efficiency and in turn food production.

The second of this group of forces directly lowering food production is the increasing difficulty of getting the materials which successful farming requires. If fertilizers are imported, war renders them difficult or impossible to procure. If they are of domestic origin, they have to take their precarious chances of transit upon a railway system which is being reorganized to accommodate itself to the expeditious movement of munitions of war. Farm machinery, like the soil, is constantly wearing out, and neglect and misuse, the inevitable accompaniments of management by amateurs, make the rate of obsolescence or depreciation a very high one. New machinery to take the place of that which has been scrapped is at best expensive, because it is made of the very productive elements out of which most munitions of war are made. Moreover, the supply of raw materials may be so limited as to allow little

if any of them to find their way into agricultural implements, or it may be that a shipping board puts them far down on the list of priorities of imports. It is also usually impossible for the farmer to pay cash for machinery, and borrowed capital is hard to obtain in war time, owing to the direct competition of the government which floats loans large enough to absorb nearly all the free capital.

In the third place the high prices which follow soon after the declaration of war give rise to great waste. Tempted to make profits while the making is good, the farmer is likely to sell even the produce which he would ordinarily keep for seed, trusting to buy in the spring at a lower price. More important still is the depletion in herds, where the increase is slow—a depletion that may cause scarcity for years to come. At present the supply of animals needed for breeding purposes in the United States and Canada, as well as in most European countries, has been reduced almost to the danger-point.

In the fourth place bare mention may be made of the huge quantity of land usurped by the modern battle front, the tendency on some fronts for the line to sway back and forth, and the destruction not only of current crops but also of orchards that only years will replace. An occupation of territory by an enemy, followed by his withdrawal, leaves behind a trail of destruction of buildings, fences, machinery, and equipment, and a desolate area of gullied and shell-strewn earth.

The second general group of forces reducing food production includes conditions which have their effect upon the whole industrial system. In the large they resolve themselves into an increase in the risk and uncertainty which accompanies business enterprise. They include capricious changes in prices, sudden changes in the industrial policy of the government, the inability to determine in advance the real effects of price control, the uncertainty about the duration of the war and what will follow it, and other major and minor forces of dissension. These are but manifestations of the general disarrangement which necessarily accompanies an adjustment of the industrial system to new conditions. The losses involved in adjusting men, materials, processes, and habits to new ends are fairly clear to anyone who has seriously thought about the

problem of the relationship of industry to war. Their extent and nature form a subject much too large and complex to be discussed here.

In passing it is of note that this disorganization is international as well as national. In fact the more a nation has depended upon others, the more likely it is to be seriously crippled by an attempt to meet new conditions. This disorganization cuts down the productive efficiency of the peoples who are not at war. We all know that in general goods are produced in the localities where favorable conditions make costs lowest, and that through a world-wide division of labor nations satisfy each other's wants. It has come about that the countries of Western Europe have specialized in the production of manufactured articles and have come to depend upon Russia, the Near East, the French and English colonies, and the two Americas for their raw materials and a large part of their food In general, industry and business have been arranged upon the assumption that normal markets and means of communication are to remain open. By seriously crippling the communication upon which the division of labor depends the war is making more expensive specialization between nations. It takes away markets, increases the costs and makes difficult of purchase the materials essential to production, and robs of its effectiveness the contribution which the international organization of industry makes to the economy of production. Out of such maladjustments in economic organization comes a loss in economy of effort and in the use of resources which affect, along with the complementary processes of the industrial system, the sequence of acts which culminates in the production of food.

V. THE BURDEN PLACED UPON THE UNITED STATES

The argument above points to a serious shortage of food and a grave food problem which are likely to be with us until the end of the war. It gives no definite promise that this problem will be less acute or even that it will not be more menacing in the future. It points clearly to the United States as the country which must bear the brunt of the task of feeding the Allies. How great this task is and what the resources are with which it must be faced a brief survey of the situation will indicate.

As we have seen, even under peace conditions, Western Europe does not produce enough of the staple commodities to satisfy its wants. In respect to cereals France alone (unless Germany be included in the count) approaches self-sufficiency, and even it has to import the bulk of its supply of meat. To recite the list of our allies in the present struggle, or to name the nations which are not our enemies, is to present a catalogue of peoples who are seriously in need of subsistence. England, France, Italy, Belgium, Portugal, Spain, Switzerland, Denmark, Holland, Norway, and Sweden are in their respective degrees in need of all the food they can get. So far as supervision, regulation, and skilful devices can be made to work, waste has been eliminated throughout Western Europe; yet, for all that can be produced or imported, the supply falls short of the barest needs. In Italy and England, for instance, the consumption of sugar has been reduced to one ounce per day for each person, while for months the French have had even less. To take wheat, which is fairly representative of the range of staple commodities, an extremely conservative estimate places the needs of our allies for the current year at a surplus of 470,000,000 bushels of wheat and 550,000,000 bushels of other cereals above domestic production. Of this amount Canada can possibly furnish 120,000,000 bushels of wheat and 100,000,000 bushels of other cereals. For the remainder of the surplus the United States is the only accessible source of supply.

It need barely be mentioned in passing that scarcity is inevitably associated with high prices. While a great many ingenious devices have been used to keep prices down, the efforts of European governments have by no means been successful, and the prices which have official sanction are far in excess of the usual prices of peace times. High prices make food increasingly hard to get with increasing degrees of slimness of the pocket-book. The result is that a very large part of the population, of belligerent and neutral countries alike, are not getting enough to make them productively efficient and that no inconsiderable part of them are becoming an easy prey to disease. It is a situation of actual and potential famine in all of Western Europe which the United States is called upon to face.

It is hard for us to realize that the United States is much less favorably situated for producing a huge food surplus than it was thirty years ago. In the interim industrialism had made huge strides in the land and a great urban population has arisen to eat up a large part of the surplus of food produced by the farms. This change is indicated by a growth of the urban population in the twenty years from 1890 to 1910 from 22,720,223 to 42,625,383, or more than 80 per cent, while rural population during the same period increased from 40,227,491 to 49,348,883, or less than 25 per cent. If the same ratios have been maintained since 1910 urban population has now become one-half of the whole. In terms of food production decidedly more than one-half of our population now produces a very insignificant part of the food which it consumes, for the rural population includes all who live in towns of less than 2,500. The significance of the change is indicated by the following figures of the production, export, and consumption of typical food products. The comparison is between the average of the five-year period ending in 1895 and that ending in 1914. The average production of wheat per year for the former period was 476,678,000 bushels; for the latter 697,459,000 bushels, an increase of 46 per cent. Between these periods domestic consumption increased from 310,107,000 to 588,492,000 bushels, or about 90 per cent, while exports decreased from 166,571,000 to 104,945,000 bushels, or 37 per cent. The average production of corn for the former period was 1,602,171,000 bushels; for the latter 2,752,372,000 bushels, or an increase of 72 per cent. Consumption increased from 1,552,003,000 to 2,790,962,000 bushels, or 79 per cent, while exports decreased from 50,168,000 to 41,509,000 bushels, or 17 per cent. The figures upon sugar, beef, pork, and other staples lead to similar conclusions. The growth of industrial centers has given us an increasingly urban population which has been consuming a larger and larger part of the food surplus.

Our primary concern, however, is with current production and current consumption. Taking the leading food products we note that while in 1915 the production of wheat increased to 1,025,801,000 bushels, of which 332,465,000, or 37 per cent, was exported, the yield fell to 639,000,000 bushels in 1916, and the estimated

yield for 1917 is only 656,000,000 bushels. Our current normal consumption is about 575,000,000 bushels, leaving only about 80,000,000 bushels of wheat to be exported, if we continue the prodigal waste of the days before the war. The yield of corn for 1917 is estimated at 3,248,000,000 bushels, an increase of 495,628,000 bushels, or 18 per cent, over the average yield of the five years preceding the opening of the European war. Our crops of barley and rye, aggregating respectively 204,000,000 and 56,000,000 bushels, are not of a size to add appreciably to our surplus of food cereals. Like the corn crop, the crop of oats last year was particularly large, aggregating 1,533,000,000 bushels. These figures indicate that the great increase has been in corn and oats, cereals upon which neither we nor the Europeans have been depending for bread.

A very early estimate places the winter wheat crop for the current season at about 600,000,000 bushels, and indicates that the acreage devoted to spring wheat has increased 15 per cent over last season. These figures, promising as they are, do not indicate a yield at all large enough to dispose of the problem. In interpreting them it must be remembered that these figures are based upon acreage, and that the winter wheat crop was put in before the draft and the munition industries made their heaviest drain upon agricultural labor, and before the farms suffered from a dearth of machinery and capital due to a diversion of supplies to war industries.

For a time after the beginning of the war the domestic production, or more properly the marketing, of meat increased materially. This is evidenced by an increase in our exports of meat (excluding pork) from 493,848,000 pounds, which was the average for the three years before the war, to 1,339,193,000 pounds for the year ending June 30, 1916, or about 190 per cent. But the figures lose their significance when we remember that before the war Western Europe received only a very small part of its meat from the United States and that the last figure is small when compared with our export of wheat or with the meat annually consumed at home. Yet there is abundant evidence from all parts of the country that stocks are being seriously depleted and that the dearth of breeding animals

will prevent so large an annual slaughter in the immediate future. Taken together these figures indicate the nature and magnitude of the problem of economy in consumption, as well as a complicated problem in production, which we have to face this season, and perhaps for some seasons to come.

But our concern cannot stop with so short-sighted a consideration of the problem. If the war is to go beyond the present year we need to make our plans with that contingency in mind. If it stops within the year its effects upon the production of food cannot be immediately halted and the food problem will remain acute for some time to come. It is possible, of course, that without sacrificing the acreage of any crop, or interfering with the production of any commodity, we may increase our production of staple commodities. It has been said that the application in this country of the technical knowledge of agriculture that is available would provide the world with all the food it requires. But the trouble is that this knowledge cannot be quickly applied. Certain factors oppose a direct increase in the total food output. The inertia that clings to traditional methods is strong upon us. Just as inability to break habits may lead an individual to death, so an inability to depart from traditions may lead a nation to defeat. The available labor is smaller in quantity this year and less acquainted with agricultural processes than that used last year. There is a prospect that an increase in the size of the army will make still further inroads upon agricultural labor and will leave man power seriously depleted. Everywhere men are leaving the farms to become industrial laborers in establishments which have contracts for the production of materials of war. Since industries turning out non-essentials have not been closed, they have been supplying little of this extra demand, and the brunt of it is falling upon the farm laborers who can hardly be spared. When we note that the volume of immigration which for some years hovered about 1,000,000 per year has fallen to a paltry 300,000 we can see how great the demand for urban labor is. It is possible that a more extensive use of machinery may make up at least in part for this decrease in labor supply. But the capital necessary for purchasing machinery cannot be easily had, since the supply is limited and the

demands of the government are unprecedented. The increase in the rate of interest is causing land values to advance at a lower rate than food prices and this discourages investment at a high rate of interest. Besides, the demands upon our iron and steel industries for munitions of war alone are fully as large as their total output under peace conditions, a fact that indicates all too well the scarcity and high prices of farm machinery when the war is once under way.

Here, as always, we must remember that the productive elements out of which society must fashion its goods are limited, and that labor, materials, and equipment can be put to one, and to only one, use. Except for the land itself, there will be less of all of the elements of agricultural production than there was before the war. Total product may be somewhat increased by using better methods and superior knowledge. But this increase cannot make up for the deficit due to the causes enumerated. The supply of staple commodities can be increased only by devoting to their production the resources used in the past to produce other products.

VI. THE BASIS OF A FOOD POLICY

The analysis of the conditions out of which springs the food problem makes evident the principles which must dominate its solution. The pages above indicate that for many years to come the United States must either produce or save a large surplus of the staple food commodities above the needs of its civilian population. This can be accomplished by, and only by, diverting food and the stuff of which it is made from ordinary peace uses into this surplus available for our military forces and our allies.

The food problem, like all the great supply problems, can find a genuine solution only in a consciously formulated policy of diversion. Despite the conclusive proof which England and France have alike offered, that war, which is the most unusual of all businesses, can be carried on only if its requirements are made the dominant end of the industrial process, some well-meaning individuals still persist in the notion that business may be carried on as usual. They seem to think that in addition to the large and conglomerate volume of the good things of life which will allow luxury as usual

and pleasure as usual, an additional supply can in some magical way be conjured up to supply the requirements of the armed forces. It is argued that the stimulus of war enables the productive system to increase its output by taking up the "slack." In support of their belief perhaps it can be said that there have long been, and still exist, abundant opportunities of increasing production by the use of new lands, new technique, new organization, new governmental supervision, and the added labor of those who once lived in idleness. While it must be admitted that war has taught the people of Europe many things about efficiency which five years ago seemed beyond their grasp, it has given no evidence of being able to add to the ordinary total production materials of war which constitute fully a 35 per cent addition to the volume of goods turned out.[1]

All the slack in our industrial system was taken up by the immediate stimulus of the European war in 1914 and 1915. It must also be remembered that efficiency comes only with the adaptation of the system to its new ends and cannot become very manifest until this process is well under way. Our recent experiences in the production of aircraft and ships, although based upon sound enough business principles as applied to peace conditions, can be characterized as dismal industrial failures. They are evidence of the waste which is a persistent, perhaps an inevitable, accompaniment of an enterprise into large-scale warfare by a nation of amateurs in knowledge of industrial society. The experimentation which is necessary to learning how to do the great tasks of war carries with it many such wastes. Many other wastes incident to the withdrawal of men and materials from industry have been recounted in the pages above and require no repetition here. In view of these conditions it seems fairly safe to say that war decreases rather than increases the total output of a nation. Certainly there is little evidence for a belief in a rising total output in a nation in which the industrial system has been organized to respond to public demand through the agency of a scheme of prices. But even if, in

[1] It is of course manifestly impossible to tell exactly the ratio borne by the aggregate of goods required for war purposes to the total of the technical product of the country. The estimate above is based upon a comparison of the expenditures involved in the annual war budget with the most reliable estimates of the value of the total product of American industry last year.

spite of losses and disorganization, production is to increase, this can come only after an adjustment to the new conditions is complete, and even then it promises at most an addition of only a small part to the total product of the country out of which must come the great supplies of a modern belligerent enterprise.

The general surplus of supplies which a civilian population must produce over and above its requirements, of which the food surplus is a single case, can be secured only by a policy of diversion. Since the resources in land, capital, and labor, under a given organization and technique, are limited, and tend to be decreased, new supplies can be had only at the expense of old ones. This diversion of economic resources to national purposes may be either direct or indirect. It is direct when consumers give up goods which immediately satisfy military demands, as for example bread which can be used to feed soldiers. It is less direct when the public abstains from purchasing an article which cannot be used, but the materials out of which it is made can be used, to produce a different article adapted to war uses. A case in point is that of automobiles, the materials of which can be converted into army trucks. The diversion is even more indirect when it occurs at an even earlier stage of the productive process, as for example when steel is diverted from structural uses in bridges and skyscrapers to submarine destroyers. From this it is evident that at earlier stages of the industrial process the limited amount of labor, machines, and other productive resources is more fluid, and therefore more easily diverted, than at the later stages. For a short war, to be fought upon a small scale, sufficient materials may be got by a diversion to war uses of goods which are intended for ordinary consumption. For a longer one requiring larger operations this source will be insufficient, and it will be necessary to go farther back and force unfinished goods into forms adapted to military ends. For a modern war of the first magnitude goods cannot be obtained in sufficient quantities and many goods cannot be got at all unless productive energy is diverted to new uses at an early stage of the productive process when it is still unspecialized and fluid. It is necessary to add that because our productive processes are long ones the adaptation of the industrial system as

a whole to the demands of war requires a carefully thought-out plan and no little time for its execution.

In respect to their ability to meet the demands of war nations may be divided into two classes, those whose industrial systems have been established with the possibility of war clearly in mind and those which have been contrived to meet no such end. In the former case in time of peace standards of living are kept low, thus limiting the amount of resources used in producing goods for personal use and leaving a large amount capable of being put to war uses. Further, in devising machines, in establishing plants, in arranging industrial establishments into a system, the alternative of military use is kept always in mind. Under such an arrangement a large volume of the materials of war can quickly be produced with small waste in conversion to new uses. In the other type of nation, on the contrary, productive energy is allowed to be spent upon the goods which meet the uses or fancies of those able to purchase them. No deliberate effort is made to save for national exigency a large share of the limited productive resources by keeping standards of living down, and machines, industrial plants, and the economic system have not been aimed in their growth at a rapid and easy conversion to unwonted uses. Under such arrangements it is with difficulty, with great loss of effort, and very slowly that the industrial system can be rearranged to meet the new ends.

In the present crisis our nation belongs to the second type, as did all of our allies at the beginning of the war; our antagonist has the military advantage of the first type of establishment. Furthermore, thus far we have relied quite largely for the diversion necessary to an adequate supply of war materials upon voluntary effort, while the enemy has used compulsion and definite design to divert productive resources to predetermined ends. To solve our problem adequately productive materials in their earlier and more fluid forms must by governmental order be turned to the production of war materials. In this case consumption can be restricted by the sheer inability of consumers to purchase the unnecessary articles with which they have hitherto loaded down their productive budgets. Failing such compulsion a rigid moral effort, directed

by intelligence and not by emotion, must be relied upon for a reduction of our consumption of the comforts and vanities of life. If by this latter means their market is taken away, producers will be forced to devote their resources to national uses.

Thus the diversion of productive resources to public ends requires of each of us a voluntary or compulsory rearrangement of individual and household budgets and radical changes in the habits of our lives. We must encourage direct diversion by reducing to a minimum our consumption of articles which can be used by our soldiers. But it is even more important that we give up the consumption of nonessential things in order that the productive energy which they embody be devoted to the accomplishment of the purpose in hand. The amount which we are forced to give up or voluntarily surrender constitutes a surplus over private consumption that measures the extent of our ability to wage war. We are fighting a nation which continues to be willing to reduce private consumption to the barest subsistence minimum. Unless a large surplus is produced we can gain no active participation in war and cannot hope for a victorious peace. The larger the surplus the shorter the war will be, and the nearer we are to victory.

VII. THE ESSENTIALS OF A FOOD POLICY

The general principles sketched above for the production of the supplies necessary to warfare apply to the food problem. Their translation into terms of the latter problem is easily made from the foregoing argument and requires a bare mention in conclusion.

First and most obvious is the obligation which the food problem imposes upon the consumer. Within the last year it has become a truism that we can all contribute to a military victory by abstaining from the over-consumption and waste of commodities like wheat, meat, and sugar, which without change of form can be used by our soldiers and our civilian allies. As yet it is not so clearly appreciated that many of our expenditures upon food get their necessity from social convention rather than from bodily need or physical or mental vigor. Before the war the consumption of food, both in quantity and in the wasteful methods of its prepara-

tion, was affected quite largely by a desire to do the proper thing. A great saving may be effected by keeping in mind the principle that the selection of articles for consumption must be based upon their food values rather than their customary positions in the dietary or social budget. More recently we have been trying to save staple foods for war uses by substituting for them other foods diverted from less important uses. As an immediate necessity much can be said in favor of this policy, provided the substitutes can be made to yield the food values which inhere in them. But as a part of a long-time program this is of doubtful wisdom, since the alternative is present of using the resources embodied in these substitutes to turn out products more in keeping with the conventional standards of American culinary technique.[1] While these and similar measures may be quite proper and fit so far as they go, they do not afford a solution of the food problem. They are based upon immediate considerations, overlook the period of several years during which there is every probability that for the Western world the problem will remain a serious one, and assume that the problem is limited to consumption. They constitute an attempt to solve the problem out of existing stocks of food. At best such a short-sighted policy will yield a bare minimum that will hardly tide the peoples of the allied countries through an emergency. It will not give them the supply of food which is necessary for health, for industrial efficiency, and for a vigorous population in the next generation.

[1] In this connection the reader probably recalls an order of the Food Administration requiring the purchaser of wheat products to purchase an equal number of pounds of bread materials made from other grains. Even as an emergency measure this order has two serious shortcomings. It makes possible the purchase of all the wheat flour desired by those who can pay a price equal to the price of the flour plus the price of the substitutes. Such individuals may turn the substitute to unimportant or wasteful uses or may not use it at all. It also leads to a great deal of waste on the part of earnest housewives who are anxious to help conserve food but whose kitchen technique comprehends no use of these substitutes. Almost any reader can testify to the many cases of waste due to each of these practices. As a long-time proposition the expediency of this rule must lie in a comparison of the waste attaching to the non-use or wasteful use of substitutes as compared with the smaller amount of food value produced by given resources when directed to the production of wheat than to the production of these substitutes. This conflict of values can be definitely settled only by the dietary, the culinary, and the agricultural experts.

Second is the burden which the food problem imposes upon the producer. It is his duty to see to it that his limited resources are used in such a way as to turn out products of maximum food value in comparison with the resources which have gone into them. Since huge quantities of staple products are required, he must not give his time, the labor of his men, his fertilizers, the use of his invested capital, and the properties of his soil to the costly production of fancy vegetables and meats which are intended to tickle the palate of the dietary aesthete. Under present conditions a nonregulated price system is not a proper guide to agricultural production. It has the double failing of leading too many people to produce articles which in the previous system have commanded high prices, to the end that the quantities of staple commodities are not properly apportioned, and of allowing the production of articles to suit the whims of those who can afford to pay. While it seems necessary to insure prices high enough to tempt farmers to produce, these prices to be effective must be carefully regulated. To the end of proper production the consumer can help the producer by refraining from buying unnecessary food products at prices attractive to the latter and thus tempting him to a wasteful use of resources.

But the real solution of the problem calls for a positive policy on the part of the government. By absolute prohibition, or by a denial of the use of essential materials, the state must see to it that food resources used in the production of nonessential food commodities be diverted to the production of essential commodities. But even more is necessary. The proper solution of the problem requires supplies larger than such makeshifts can offer. The government must see to it that where possible machinery is forthcoming to take the place of the labor which has gone into the army. It must divert capital from nonessential industrial uses to essential agricultural uses. And where a labor shortage threatens production it must see that an adequate labor supply is found. In resources of the soil the United States lacks nothing; the function of the state is to see that the auxiliary materials are forthcoming and that food be increased even at a sacrifice of nonessential industries.

Third is the burden which is placed upon the state to supervise the proper distribution of food. It must find principles for settling the claims between the civilian populations of our allies, our armies, and the civilian population at home. In addition the problem of distribution between the individuals which make up each of these groups is a difficult one. Fortunately only the last of these devolves upon those who are responsible for the national food policy. Even the bare outlines of the solution of these problems of distribution would require a great deal more space than this article occupies, and here it must be dismissed with a word. Economic theory and actual practice alike attest the possibility of the solution of these problems by authoritative regulation, including price-fixing. But it is safe to say that no authoritative policy can hope to succeed if it be formulated in ignorance of the nature of the price system and of the relation of particular prices to economic conduct.

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COMMERCIAL BANKING AND CAPITAL FORMATION

II

I. INTRODUCTION

It may be recalled that in the excerpts from standard treatises given in the first paper of this series[1] commercial banking was discussed from four points of view. Having considered the first three of these in the preceding article, we may now turn our attention to the fourth view, namely, that commercial banking is—or should be—related to commerce rather than to industry, to the manufacturing and marketing of goods rather than to the development of fixed capital in the form of plant and equipment.

This view of commercial banking has found incorporation in our banking legislation. It was the theory underlying our national banking law from the beginning, and it has been given added emphasis in connection with the Federal Reserve System. A large portion of the discussion preceding the recent reorganization of our banking system emphasized the importance of keeping bank assets liquid by (largely) confining the use of bank funds to short-time loans to business men engaged in the producing and marketing of goods, loans which would be "automatically self-liquidating" in two or three months through the sale of goods bought with the very funds that had been borrowed. Loans, the proceeds of which were used for the creation of fixed capital, plant, and equipment, were to be viewed with suspicion and restrained to the smallest possible minimum. Similarly, under the Federal Reserve act itself the regulations that have been laid down with reference to rediscounts, etc., draw a sharp line between investment and commercial uses of funds, and the attempt is being made, through these regulations and through the development of the trade acceptance, to confine the activities of our commercial banks mainly to the financing of commodities through the various stages of raw material, partly finished goods, and finished products in their passage through

[1] *Journal of Political Economy*, XXVI (May, 1918), p. 484–509.

the hands of producers, manufacturers, wholesalers, and retailers, respectively.

It will be noted that qualifying terms have been used above, such as "should be," "largely," and "mainly." These qualifications are necessary because it has long been recognized that our commercial banks are prone to ignore, in practice, the distinction between commercial and investment business. Writers on banking have doubtless been inclined, because of their desire to emphasize the importance of commercial loans in connection with the liquidity of assets, to underestimate somewhat the extent to which commercial bank funds are, in practice, loaned for non-commercial uses. But it should not be inferred that men such as Scott and Laughlin[1] fail to realize that a very considerable amount of loaning for investment uses has, in fact, developed.[2] Despite the provision of the national bank act forbidding loans on real estate and despite the emphasis in the Federal Reserve act upon "genuine commercial operations," it has been quite generally recognized that a considerable quantity of non-commercial (non-liquid) loans may safely be made, provided the bulk of the bank's assets grow out of live commercial operations. It is usually argued, however, that a disproportionate quantity of investment loans renders bank assets unliquid, endangering the ability of the banks to meet their demand obligations and consequently imperiling the entire credit structure. It is believed, therefore, that investment loans should be restrained and kept within very conservative bounds.

The purpose of this and a succeeding paper is (1) to indicate the extent to which the distinction between commercial and investment operations is ignored in actual banking practice, and (2) to

[1] See quotations in previous paper, *Journal of Political Economy*, XXVI (May, 1918), p. 492.

[2] Anderson writes, after referring to Scott, that "to one accustomed to this view . . . . (the following table, showing the extent of investments by all banks) will occasion dismay." The Value of Money, p. 498. Scott was among the first however to point out specifically the various ways in which commercial banks do, in practice, extend loans for investment uses. He merely believes that the practice is dangerous, a fruitful cause of inflation. (See his "Investment vs. Commercial Banking" in *Proceedings of the Second Annual Convention of the Investment Bankers Association of America* [1913], pp. 81–84.) Numerous other writers have taken the same general stand, e.g., Cleveland, Barron, Geiger, Brandeis, Laughlin, and Ingles.

raise the question whether this banking practice has, in the main, any serious consequences. Does the traditional distinction between commercial and investment loans serve any practical purpose? Has the point of view presented in the previous paragraph with reference to the liquidity of bank assets any solid foundation?

II. THE MEANING OF "COMMERCIAL" LOANS

In order to estimate what proportion of the funds of commercial banks is devoted, in practice, to investment operations it will be necessary to make a preliminary analysis of banking terminology. There has been much confusion in the use of the term "commercial" as it relates to banking operations. Commercial loans are often regarded as synonymous with short-time loans; sometimes the term relates merely to credit extension devoted to the marketing of goods; and again "commercial paper" is technically limited to that which is sold through the intermediation of brokers or commercial paper houses. These varying uses of the term have led to much confusion as to the actual nature and scope of commercial banking operations.

In his recent volume on *The Value of Money* B. M. Anderson defines commercial paper as "all loans of a really liquid character, made by banks to merchants and others to pay for the purchase of goods in anticipation of a resale within the term of the loan which will enable the loan to be repaid at maturity. From this should be excluded, however, loans made to speculators."[1] As Anderson points out, this is not in accordance with the market or street use of the term, which regards that paper as "commercial" which is bought through commercial paper houses. It is rather the broad economic conception of *commercial* as distinguished from *industrial* business. It is on the basis of this conception of commercial paper that Anderson concludes that the commercial paper of all national and state banks and trust companies in the United States constitutes only 18.2 per cent of the total credit extensions of these banks.[2] A criticism of Anderson's analysis will serve as a convenient point of

[1] Anderson, *The Value of Money*, p. 499.

[2] Anderson, *op. cit.*, p. 509. Anderson believes this to be too conservative a figure (footnote, *ibid.*).

departure for a discussion of the investment operations of the commercial banking system.

In his analysis of commercial paper Anderson rules out manufacturer's paper from the commercial class, and in doing so is of course not without company. Our habit in the economic fraternity of drawing the line between industry and commerce—between "industrial organization" and "commercial organization"—at the manufacturer is, however, untenable from the standpoint of banking analysis. A manufacturer regards his raw materials as quick or liquid assets; they are considered in the trade to be quite as liquid as accounts or notes receivable from wholesalers or retailers. If two months are required to "finish" given raw materials and sell them to wholesalers, why should not a loan to pay for the purchase of these raw materials for manufacture be regarded as a commercial loan? To separate manufacturer's paper from wholesaler's paper is in effect to argue that there is for the purpose of banking analysis a vital difference between the creation of a form utility and the creation of a time, place, or possession utility.

The reason why manufacturer's paper should be classed as commercial may best be appreciated perhaps by a brief consideration of the basis on which a bank usually makes a loan to a manufacturer. If the financial statement of a manufacturer shows a satisfactory ratio of quick assets to current liabilities, and if other factors are in no wise disquieting, the loan will be made. The quick assets are cash, raw materials, partly finished and finished goods, and accounts and bills receivable for goods sold. The banker expects to be paid from the excess of inflow over outgo of funds during the period of the loan. Practically all of the inflow of funds comes, in fact, from goods already sold to wholesalers and retailers but not yet paid for, and from other goods being sold from day to day, or which could shortly be sold in case of compulsory liquidation. The means of payment to the banker therefor come from the sale of goods quite as much as in the case of loans to middlemen. Moreover, they come from these very middlemen themselves.[1] This same

[1] The funds for repayment do not, it is true, come from the resale of specific goods purchased with the proceeds of the loan, but this fact in no sense renders the loan a non-commercial one. It may be added that in most cases under prevailing banking methods retailers are not repaid from the sale of specific goods bought in anticipation of such sale. See *infra*, p. 645.

analysis will obviously apply still farther back in the industrial process—with the producer of the raw materials. The "working capital" as distinguished from the fixed capital in the form of plant and equipment may, it seems to me, fairly be regarded as engaged in commercial business so far as the banking viewpoint is concerned. Ten thousand dollars borrowed from a bank by a producer of raw materials may in three months' time convert itself into more than ten thousand dollars worth of raw materials that have been sold to a manufacturer. Nor does it matter, as one would infer from Anderson,[1] if some or even most of the proceeds of the loan are paid out as wages. If the laborers to whom the wages are paid bring forth the raw materials and start them on the way through the various stages of the industrial process, the funds borrowed are just as clearly being put to uses which provide the means for the automatic payment of the loan at maturity as when the funds are devoted to the purchase of goods by a retailer; and, as in the case of the manufacturer, the loan is, in fact, made with the knowledge that it will be paid from receipts from sales.

Anderson also rules out virtually all loans to agriculture as being non-commercial, whether the funds are used for growing and harvesting the crops, for fattening live stock, or for making permanent improvements, purchasing breed cattle, etc. To my way of thinking so long as the funds borrowed are put to uses which shortly result in products for sale which have a value equal to or in excess of the amount of the loan, we should regard such operations as commercial. It should be remembered that, as in the previous cases, the bank looks to the proceeds from sold goods for its payment. To use a common expression of the country banker, it is thus that the bank "sees the money coming back."

It would seem that Anderson also unwarrantably narrows the scope of commercial operations when he insists that loans secured by warehouse receipts are not commercial loans when they represent "advances to live stock, grain and produce traders, and speculators on the Board of Trade, at the stockyards, etc."[2] He admits that such loans are liquid, but argues that they are not commercial.

[1] *Op. cit.*, p. 500. [2] *Ibid.*, p. 503.

This position is much harder to understand than that of ruling out manufacturer's paper, for economic science has generally regarded such operations as those listed above as the activities of middlemen engaged in the marketing or distribution process. So far as I can make out Anderson would, however, confine "commerce" exclusively to the activities of wholesalers and retailers, importers and exporters.[1]

To guard against misinterpretation at this place the reader should bear in mind that I have not been arguing that *all* short-time loans made to producers, manufacturers, etc., are necessarily self-liquidating or that many of the funds thus borrowed are not put to investment uses. This whole question is reserved for later discussion. The present purpose is merely to show that from the standpoint of banking analysis the line between commerce and industry should be drawn, if drawn at all, between fixed or durable forms of capital goods, on the one hand, and circulating capital and consumption goods, on the other hand. The investment process, it is said, is from the very nature of the use to which the funds are put slowly liquidating, while purchases and sales of raw materials, partly finished, and finished goods, are, in the nature of things, quickly liquidating operations. Plant and equipment represent investment business, whether in retailing or manufacturing, and materials and stocks of goods represent commercial business, wherever found.[2]

III. THE VARIOUS TYPES OF BANK LOANS

It will best serve the purposes of our present study if we drop for the moment the terms that we have been employing and shift

[1] One definition of "commerce" may of course be as good as another; but the test is applicability to the problem in hand. Anderson's restricted use of the term leads him to conclusions which are quite untenable. For instance, his fear that the banks of the financial centers possess so little genuine commercial paper available for rediscount that unless they be given power to rediscount investment paper they will be unable to expand credit sufficiently to meet the requirements in a period of crisis should be greatly weakened owing to the fact that the Federal Reserve Board does not limit "commercial paper" to loans devoted to wholesaling and retailing, importing and exporting but draws the line between fixed capital and circulating capital in the way that has been suggested above.

[2] Whether commercial business is all equally liquid is of course another question.

both our point of view and our terminology to that of the business world. The typical business man does not ordinarily distinguish between the commercial and investment aspects of his business; he is more likely to speak of his *fixed capital*—plant and equipment—and of his *working* or *operating* capital—materials, stocks of goods, etc. Under modern corporate conditions he borrows through or from various financial institutions no small proportion of both his fixed and working capital. Since this capital is borrowed in the form of money or liquid funds, the business man very naturally regards his capital, in the first instance, as money or its equivalent. To the business man, therefore, financial houses are institutions to which he may go when he wishes to borrow the necessary funds with which to build or operate a business.

As our financial fabric has developed, business men have of course looked to our so-called commercial banks as the main source of loans for working capital. Fixed capital is in considerable measure borrowed directly through investment institutions; but nowadays business men go either directly or indirectly to the commercial banks for an enormous amount of fixed capital.[1] In order to understand clearly the ways in which our commercial banks furnish the funds for fixed capital and the bearing of this upon the liquidity of bank assets in the modern business world it will be necessary to analyze briefly the various forms of loans now made by commercial banks. The purpose in hand is that of showing to what uses the funds borrowed are devoted in practice.

Commercial banks advance funds to the business world in four main ways: (*a*) by "unsecured" or non-collateral loans; (*b*) by collateral loans; (*c*) by the purchase of bank acceptances; and (*d*) by investments in bonds and stocks.

a) *Unsecured or non-collateral loans.*—The development of American business and banking methods since the Civil War has been such that non-collateral ("commercial") loans do not always represent genuine commercial operations. For reasons which need not be discussed here it became a common practice in the latter part

[1] It should be recalled here that the funds of investment institutions do not necessarily arise out of cash operations anywhere. A savings deposit by A may be a check on a commercial bank which grew, originally, out of a loan from a commercial bank.

of the nineteenth century for producers and dealers to sell goods on open account, with an option to the buyer of paying cash shortly and receiving a discount. Time drafts were not drawn and presented for acceptance, and notes came to be required, in the main, only when the borrower's credit was doubtful or, in the case of extensions, when the open accounts ran to maturity and then were not paid. This change in commercial practice caused a corresponding change in the machinery of banking. Instead of discounting customers' notes or acceptances with a banker the business man who wanted to borrow presented his own unindorsed note to the banker. Producers of raw materials, manufacturers, jobbers, wholesalers, and retailers—all were to a greater or less extent buying and selling on credit. No class owned all its working capital; each had to borrow. Some classes of business men borrowed more extensively from banks than others, but this does not concern us here. Our present consideration is that in making a loan the bank ceased, under the changed credit methods, to rely for its security upon a specific and actually completed business transaction.

Under the old method, if wholesaler A had in his portfolio twenty thousand dollars in accepted drafts or notes of retailers he could discount each with the bank and get twenty thousand dollars less the discount. Under the new method the bank does not directly discount the accounts receivable of wholesaler A or undertake their collection at maturity for a commission or discount.[1] This would be impracticable, because, among other reasons, the precise date of payment of the open account is uncertain; advantage may be taken of the cash discount or the buyer may choose to wait until maturity. In any event the commercial bank has come in recent years to grant each customer a "line of credit" of such a total as the general condition of his business warrants.

The amount that may safely be loaned under these conditions can be ascertained only from an intimate personal acquaintanceship with the borrower and his business or from a study of a balance sheet or financial statement setting forth the condition of the business. The growing impersonality of modern business in the larger

[1] There are some financial houses in the larger cities, however, that have developed a special business of this sort.

centers and the growing size and complexity of business enterprise has more and more necessitated the use of the balance sheet as a basis of credit extension. Historically it appears that it was in the late seventies that financial statements were first used in procuring loans, though it was not until the nineties that their use became common even with the larger commercial banks.[1]

Under this new method of loaning the bank does not look to specific commercial transactions for its security, but to the quick assets in general. Below is a financial statement which was presented to a large commercial bank as a basis for a loan. Its correctness had been attested by a certified public accountant.

RESOURCES

Manufactured merchandise		$ 322,322.77
Raw material		86,926.42
Accounts and notes receivable		287,267.64
Cash		111,694.51
		$ 808,211.34
Real estate		207,860.59
Equipment		104,870.73
Furniture, fixtures, and supplies		48,126.78
Total		$1,169,069.44

LIABILITIES

Notes and accounts payable		$ 143,202.20
Capital stock		400,000.00
Profit first six months	$50,666.56	
Profit second six months	75,568.62	
Surplus		583,645.18
Reserve fund		27,222.06
Special reserve		15,000.00
Total		$1,169,069.44

A large loan was in fact granted on the evidence presented by this balance sheet. This is not the occasion for a detailed analysis of a financial statement, but, in brief, the evidence of ability to repay the loan is to be found in the ratio of quick assets to current

[1] With the small suburban banks of our cities and with country banks generally the statement is of course even now not generally used.

liabilities. The quick assets are the first four items; they total $808,211.34. The current liabilities are the notes and accounts payable, $143,202.20. Suppose this company applies for a loan of $200,000. The banker sees that the company has to meet $143,202.20 of obligations in the near future. Will it be able to repay in three months an additional obligation (a loan from the bank) of $200,000? The company has cash amounting to $111,694.51 and accounts and notes receivable amounting to $287,267.64, a total of $398,962.15, with which to meet a total indebtedness of $343,202.20. But in addition the company has manufactured merchandise and raw material valued at $409,249.19, much of which may be converted into cash within three months and most of which could be quickly disposed of without tremendous sacrifice in the event of liquidation, $808,211.34 (total quick assets) −$343,202.20 (total current liabilities) = $465,009.14, the margin of security possessed by the bank. There could be a substantial loss in the accounts and notes receivable and a heavy shrinkage in the value of the manufactured merchandise and the raw material before the security of the loan would be seriously impaired. In fact in the case before us the security is more than ample—a considerably larger loan than $200,000 might well be made.

But we have neglected one important item in our analysis. What use was made of the $200,000 borrowed from the bank? If spent in the purchase of raw materials the quick assets are increased by $200,000 and the margin of security is proportionally enlarged. Note in this case that the bank's margin of security would certainly be substantially larger than it would have been had it merely discounted for this manufacturer a large note receivable or an accepted trade draft growing out of an actually specific completed transaction, unless this latter were buttressed by a large amount of unattached assets. In fact I think it an open question whether the use of the discounted trade draft will in practice result in a sounder credit extension than the present method when efficiently operated. This is, however, another story.[1]

[1] It may be noted here that the better banks do not discount trade acceptances without reference to the proportion of quick assets to current liabilities for the business as a whole. In other words, they refuse to rely upon the "specific" transaction.

To return to the use of this $200,000 that is borrowed from the bank: suppose that instead of buying raw materials the manufacturer uses it for investment purposes—for new plant or equipment. Does this make the loan any less liquid than when the funds are devoted to commerce? The answer should be apparent that it does not. It might be argued, however, that it would be safer as well as more liquid if the funds were used for raw materials rather than for fixed capital. The answer is that, although such a use of the funds would result in the creation of additional quick assets, a larger loan could, and usually would, in consequence be made, so that the ultimate margin of liquid resources would remain the same as before.[1] In practice banks do not object to the use of funds borrowed on short-time paper without collateral for investment purposes so long as the ratio of quick assets to current liabilities is sufficiently ample to insure the payment of the loan from the excess of income over outgo;[2] and there is no reason why they should.[3]

Owing to the agitation in favor of genuine commercial operations in connection with the Federal Reserve System, bankers are now somewhat loath to admit that they sanction the employment of loans made by the foregoing method for investment uses, but the fact that a considerable percentage of such loans does go for the development of fixed capital is widely known. It is of course impossible to say precisely what percentage of non-collateral loans is in fact used for the creation of fixed capital; but the writer's estimate based on investigations extending over a period of several years would be at least 20 per cent.

[1] Modern businesses, as a rule, borrow pretty much to the limit imposed by their net resources.

[2] The extent to which quick assets must exceed current liabilities for the loan to be safe varies widely in different lines of business. For a time many bankers followed a rule-of-thumb "two to one" ratio, without much variation; but of recent years the analysis has come to be more and more that of "each case on its merits."

[3] Again we must of course question the efficiency of the analysis that banks make under this method. The writer's studies in bank management have led him to believe that with the big commercial banks of the cities the analysis is now very efficient. While the statement is not commonly used in the small town banks there is nevertheless a fairly accurate knowledge of the probable excess of income over outgo during the period of the loan.

In concluding this discussion of loans without collateral it only remains to recall to the reader that in the process of making such loans the commercial banking system, through the process discussed in the preceding paper, has done something more than transfer funds from lenders to borrowers; it has multiplied its cash resources by sixteen—created liquid funds to $16,000 for every $1,000 of actual specie in bank vaults. It is usually stated that this is an expansion of the circulating medium. It will serve our present purpose better, however, to call it an expansion of "capital," using the term in the popular business sense. This "capital," moreover, let it be repeated, is only partly "working" or "operating" capital; to the extent that the funds borrowed are employed in the creation of plant and equipment it is "fixed" capital that has thus been augmented.

b) Collateral loans.—In undertaking a study of collateral loans it will prove serviceable to consider, first, under what circumstances collateral security is required or given. Broadly speaking, we may say that the theory underlying the hypothecation of collateral with a bank is, sometimes, that there is doubt as to the ability of the borrower to pay the loan promptly at maturity and, again, that the business of the borrower is of such a nature that no serious inconvenience attaches to the deposit with the bank of acceptable collateral security. Conversely, if we may retrogress for a moment, the theory underlying the non-collateral loan is in part that there is so little chance of the nonpayment of the loan at maturity that to require collateral is to insist upon superfluous protection, and in part that, owing to the nature of his business, the borrower possesses no collateral which he could conveniently offer as security. The first of these reasons of course relates to the commercial use of the funds borrowed, or to an accurate appraisal of the excess of income over outgo during the period of the loan. But even if the risk of nonpayment were not negligible, it would nevertheless be impossible, in many instances, for the borrower to put up collateral, for a merchant cannot deposit his wares with the bank and at the same time display them for the purpose of sale. He would need either to give the banker a chattel mortgage on his goods or else deposit securities of some sort which he chanced to own. The

chattel mortgage would require no little expense and, moreover, there are legal obstacles to its convenient use. As for securities the business man seldom owns stocks and bonds in sufficient quantity to serve as collateral for all the working capital which he must borrow, if, indeed, what he may own is not already in use as collateral for borrowed fixed capital.

Returning now to the theory of the collateral loan, it should be borne in mind that the risk of nonpayment at maturity, where it exists, does not necessarily reflect upon the character of the borrower; it is an indication, rather, that the use to which the funds borrowed are devoted is such that they do not give ordinary assurance that the loan will be paid *at maturity*. Such loans are made for consumptive, investment, or speculative uses rather than for ordinary commercial purposes.

It should be noted, however, that this is not always the case. Whenever goods are stored in warehouses we are likely to find that the owner hypothecates the warehouse receipt with the banker when he borrows working capital. This indicates neither that the character of the borrower is bad nor that his business is not of a commercial nature. Wheat, whiskey, canned goods, and cotton are examples of warehoused good's receipts against which are often used as collateral. Such transactions may or may not be of a speculative nature. In many instances, certainly, the reason for requiring collateral is that collateral is available because the way in which the goods are handled is such as to give rise to a legal instrument adapted for use as collateral.[1]

Similarly the use of bills of lading as collateral does not nceessarily bespeak any great risk of nonpayment; and it certainly does not denote a non-commercial employment of funds. The bill of lading is necessary, first, as an evidence that the railroad has received goods for shipment, and its use as collateral is primarily due to the fact that the shipper has here a piece of documentary evidence of an actual commercial transaction—evidence, moreover, in such a form as to be conveniently turned over to the bank as collateral security for the goods in transit. He is thus enabled to borrow on a narrower margin of security. It should be noted,

[1] The great development of warehousing in recent years is making this form of loan increasingly common.

moreover, that loans on warehouse receipts and bills of lading furnish working capital.

But we are here concerned with loans that are made for non-commercial purposes and with collateral in the form of stocks and bonds. Stocks and bonds are hypothecated with banks in order to secure funds for three main purposes: consumption, investment, and speculation.[1] Discussion of the consumptive loans may be passed by, for they are relatively unimportant. By investment collateral loans we mean loans to business men who use the funds in the creation of fixed capital. Collateral is in such cases required primarily in order to protect the bank in case the loan is not paid at maturity, to enable it to get cash through the sale of the collateral.

The speculative collateral loans require more careful consideration. First, what does the term "speculative" mean? Is speculative borrowing to be differentiated from commercial and investment borrowing, or are the funds thus borrowed merely devoted to commercial or investment business, as the case may be, that is of an especially risky nature. From the business viewpoint do speculative loans provide working or fixed capital? It will be necessary to discuss in turn the several types of borrowers that are associated with the securities markets.

1. Financial houses which underwrite the sale of securities borrow extensively from banks. From the standpoint of the underwriters these borrowed funds are working capital. They constitute the means whereby they finance their underwriting operations and are of course not used by the underwriters in the creation of plant and equipment. From this point of view it is apparent that the business of the underwriter is closely akin to certain phases of commercial business, such as that of the traders in grain, cotton, and live stock. But since bonds and stock are less staple and more speculative than crops and cattle there is a greater risk that stock-exchange loans cannot be promptly paid at maturity.

From the point of view of the uses to which the funds borrowed by the underwriters are eventually devoted, however, we find that they are aiding investment operations. In advancing funds to

[1] Commercial borrowers, whose unsecured credit is not of the best, of course often borrow on collateral; but such loans need not be discussed here.

corporations, pending the ultimate absorption of securities, underwriters enable the corporations to begin operations more quickly than would otherwise be possible. It follows that to the extent that the underwriters borrow from commercial banks the banks are, in final analysis, advancing through this process funds for fixed capital uses.

2. Bond houses and stockbrokers engaged in the marketing of investment securities hypothecate unsold holdings with commercial banks as security for working capital. Here we have a very close analogy to ordinary commercial business. Instead of stocks of goods the bond house and stockbroker have bonds and shares for sale. But since such wares are much more likely to fluctuate widely in value than are articles of staple consumption there is a greater necessity for collateral security. It must be borne in mind, however, that these businesses are of such nature that it is easy to put up collateral. The bonds and shares, unlike merchandise, do not have to be on display. As we shall presently see, it is quite possible that banks would assume the risks of such loans without the deposit of collateral were there any necessity for so doing.

It should be observed here, again, that while the bond house and stockbroker borrow working capital on this collateral security the funds are in fact ultimately used in the development of fixed capital in the corporations whose securities they are marketing.

3. There is a vast business of buying on margins in which stocks and bonds are used as collateral. In connection with this business it is important to note that the brokers temporarily borrow from the banks without depositing collateral. This was once generally done through the process of overcertification but now is done by "morning" loans—at least so far as the national banks are concerned. The broker's customer puts up a margin of, say, 10 per cent with which to buy $10,000 of stock. On this $10,000 of stock as security the bank would loan, let us say, 80 per cent, or $8,000. Thus the client furnishes $1,000, the bank $8,000, and the broker $1,000 in the purchase of $10,000 worth of stock. But it is evident that the stock cannot be hypothecated with the bank until the broker has it, and that he cannot gain possession of it until he has paid for it. The broker therefore borrows $8,000 from the bank

on his personal security. Under the method of overcertification he draws a check against the bank for $10,000 and the bank certifies it, although his balance there is only $2,000, including the margin advanced by the customer. With this check the broker buys the stock, which he then deposits as security for the loan of $8,000. With the "morning" loan the broker is extended a daily line of credit proportioned to his requirements and conditioned by the maintenance on his part of a satisfactory net daily balance with the bank. In either case it will be observed that, pending the delivery of the collateral, the bank has made unsecured loans. There is small risk in this practice, for the broker's reputation and business ability are examined with great care before the loan is granted. Such loans, moreover, are of extremely short duration. As soon as the stock is purchased it must be deposited as collateral, and the loan then becomes a secured one. But there is clearly an interval of time in which all such loans are without security other than the personal character and the unattached property of the borrower. It should be noted here also that when an unsecured loan is made to a merchant there is a large amount of liquid assets to fall back upon in case of trouble, while in the case of brokers' loans there is as a rule only a meager cash balance in the bank.

It will be observed from the foregoing anaylsis that the brokers borrow working capital (and they possess little that is not borrowed) from the commercial banks.

Turning to a consideration of the ultimate uses to which the funds thus borrowed are devoted we find, however, a somewhat different situation. It is to be observed, first, that these vast investments in corporate securities are largely financed by the commercial banks. Assuming a 20 per cent margin of collateral, 80 per cent of the funds devoted to margin speculation is borrowed from the banks. Here again the commercial banks are really furnishing funds for investment purposes, for from one angle we find that such funds represent the purchase money for securities sold for the purpose of raising fixed capital. The corporations which issue the securities are making investment uses of the funds thus borrowed—not of the specific funds, it is true, but of generalized funds, the ownership of which is merely being constantly shifted as the

securities are bought and sold in the market. Somebody, regardless of the shifting of ownership, is permanently out of funds which the corporation is using; and it is some commercial bank that is always furnishing the greater portion of such funds.

Viewed from one angle we call such operations "speculative" in their nature. This is of course an acceptable appellation so far as the purpose of the margin trader is concerned when he makes his purchase. But it is to be observed that this fact in no wise affects the other fact that through the process of loaning on collateral the commercial banks advance great quantities of funds which are used for fixed capital.

It should perhaps be noted in passing that the active market provided for such securities by this speculative trading is indispensable to a successful original sale of securities. One will buy securities with temporarily idle funds provided he is assured a ready sale at any time he may prefer to have his resources in the form of cash. Business men are coming more and more to make investments in bonds for short periods of time during slack business seasons; while banks have of course long carried securities as temporary investments during periods of easy money in their particular communities. Because of this active market we therefore not only induce original investments, but we enable business men in general to keep at all times a much larger proportion of their resources profitably employed than would otherwise be possible, and hence enable corporations to use continuously a larger total of borrowed funds than would be possible if investments were confined to those who could spare funds permanently. It is in no small degree owing to this flexibility in the financial structure as a whole that modern business can be conducted on so vast a scale. And it is the loaning on collateral by the commercial banks which makes this flexibility possible.

In concluding this discussion of collateral loans it is to be noted again that the commercial banks (considered as a system) are able, when making loans on collateral, to expand loans to sixteen times the amount of cash resources at their disposal, just as in the case of loans made on unsecured paper. Whether there are especial dangers connected with such an expansion of credit on the basis of col-

lateral security will be discussed in a following article, which is devoted specifically to the problem of liquidity.

c) The purchase of bank acceptances.—Banks also extend credit by the purchase of acceptances of other banks. The accepting bank is willing to accept only if satisfied that the customer on whose behalf the acceptance is made will be in a position to put the bank in funds before the maturity of the acceptance. The analysis required by the accepting bank in such a case is the same as that required when a loan is made. Purchased acceptances, therefore, usually represent an extension of funds for commercial uses, though it is possible that about the same percentage of such extensions goes for fixed capital uses, as in the case of loans to customers. Perhaps, however, the fact that the acceptance business has developed at a time when the Federal Reserve System so strongly emphasizes the need of confining commercial banking to "genuine commercial operations" has resulted in more strictly limiting the use of such funds for commercial purposes.

d) Investments in bonds and stocks.—There remain to be considered the investments which banks make directly in securities. This practice has extensively developed in recent times, and our commercial banks now have enormous holdings of securities. It is confined to no particular class of banks, though perhaps some of the commercial banks of the great financial centers have most extensively entered the field of direct investment operations. Such banks as the National City and Guaranty Trust Company of New York, for instance, now hold vast amounts of securities in a wide range of businesses. In 1916 the securities holdings of national banks, including United States bonds, equaled 30 per cent of all the loans and discounts of national banks; exclusive of United States bonds they equaled 20 per cent. For state banks in the same year the percentage of investments in securities and real estate (other than bank premises) to loans and discounts was 21.5 per cent; for trust companies, 46.5 per cent.[1]

In the light of the foregoing analysis we may now present some tables which will roughly indicate the degree to which commercial

[1] These figures are based on the *Report of the Comptroller of Currency, 1916*, II: national banks, p. 364; state banks, p. 859; trust companies, p. 885.

TABLE I

INVESTMENT BUSINESS OF NATIONAL BANKS*

LOANS OF COMMERCIAL NATURE

Unsecured by collateral (demand)	$ 660,213
Unsecured by collateral (time)	3,760,225
Discounted acceptances	24,500
Total unsecured by collateral	$4,444,938
Secured by merchandise, warehouse receipts, etc. (demand)	$ 223,639
Secured by merchandise, warehouse receipts, etc. (time)	661,338
Total secured	$ 884,977
Total secured and unsecured	$5,329,915
Total genuine commercial loans (unsecured) equal $4,444,938 minus 20 per cent† of $4,444,938	$3,555,950

LOANS OF INVESTMENT NATURE

I. *Loans:*‡	
Secured by stocks and bonds (demand)	$1,159,007
Secured by stocks and bonds (time)	1,029,612
Secured by real estate, mortgages, and other liens on realty	160,633
Total investment loans	$2,349,252
II. *Investments:*§	
United States bonds	$ 731,205
Other bonds, securities, etc	1,527,832
Stocks (not Federal Reserve banks)	39,272
Total investments	$2,298,309
Total loans of investment nature equal investment loans plus 20 per cent¶ of $4,444,938	$3,238,239
Percentage of all loans that are of investment nature equals	53.7
Percentage of loans plus investments that are of investment nature equals	64.4

* 000 omitted from each amount.

† This estimate that 20 per cent of the non-collateral loans are of an investment nature is derived from the analysis above, p. 648.

‡ Data on loans taken from *Report of Comptroller of Currency, 1916*, II, 161, date of June 30.

§ Data on investments taken from *Report of Comptroller of Currency, 1916*, II, 364, date of June 30.

¶ This addition to investment loans is of course a result of the situation mentioned in note 1.

banks in the United States extend their funds for investment uses.

It is impossible to present a detailed table for either state banks or trust companies because the comptroller's reports do not subdivide loans and discounts.

TABLE II

INVESTMENT BUSINESS OF STATE BANKS[1]

Loans and discounts plus overdrafts:			
Commercial[2]		$1,577,433,300	
Investment		1,829,549,334	
			$3,406,982,634
Investments	$693,287,159		
Other real estate owned	52,304,090		
Total		$ 745 591,249	
Investment loans		1,829,549,334	
Total investment business			$2,575,140,583
Percentage of loans plus investments that are of an investment nature			62.1

It is to be noted that in Table II it has been assumed that the percentage of loans that are of an investment nature is the same as in the case of the national banks. It is generally known, however, that state banks, subjected to less stringent supervision, have been less inclined to confine loans to genuine commercial uses than the national banks. The foregoing figures, therefore, are too conservative. The investment business of the state banks would probably be between 65 and 70 per cent of the total credit extended.

I am quite aware that these tables are open to question at various points. It may be that my estimate that 20 per cent of the unsecured loans goes for investment commercial uses is somewhat too high. The application of this 20 per cent deduction to the discounted acceptances may also be questioned (but the amount of acceptances at this date is not great), and it is of course true that some of the loans made with collateral as security go for working

[1] The table is for 15,450 state banks. Data taken from the *Report of the Comptroller of Currency, 1916*, II, 859.

[2] This is assuming that the loans of state banks show the same percentage to be devoted to investment as do those of the national banks, namely, 53.7 per cent.

capital rather than for fixed capital; the tables make no allowance for this. Exact percentages in a problem of this kind are, however, of little consequence. It is enough that we may safely conclude that around 50 per cent of all loans of national and state banks and

TABLE III

INVESTMENT BUSINESS OF TRUST COMPANIES[1]

Loans and discounts plus overdrafts:			
Commercial[2]		$1,715,123,630	
Investment		1,989,244,902	
			$3,704,368,532
Investments	$1,605,392,872		
Other real estate owned	82,329,934		
Total		$1,687,722,806	
Investment loans		1,989,244,902	
Total investment business			$3,676,967,708
Percentage of loans plus investments that are of an investment nature			68.2

trust companies is devoted to investment uses, and that, including direct investments, in the neighborhood of two-thirds of all the credit extended by commercial banks goes for fixed rather than for working capital.

IV. INVESTMENTS IN BONDS AND SECURITIES NOT A MERE TRANSFER OF FUNDS

We must now return for a moment to a consideration of direct investments which commercial banks make in bonds and securities. The significance of the commercial bank in the field of investment can be understood only by a clear recognition that in making investments in securities, just as in the making of loans, the commercial banking system is something more than an intermediary in the transfer of funds from borrowers to lenders. The credit organization which characterizes commercial banking operates quite as much in the making of investments as in the making of loans, and the

[1] The table is for 1,606 loan and trust companies. Data taken from the *Report of the Comptroller of Currency, 1916*, II, 885.

[2] This is assuming that the loans of trust companies show the same percentage to be devoted to investment as do those of the national banks, namely, 53.7 per cent.

development of the commercial banking structure has thus involved a multiplication of cash resources by sixteen, just as in the previous examples given. That is to say, on the basis of a cash reserve of $1,000 the commercial banking system has made possible the purchase of $16,000 worth of securities. It must be emphasized that this multiplication of loanable funds has resulted from the organization of the commercial banks as a whole, and that it cannot be perceived by studying the operations of any individual bank in isolation.

In order to test the correctness of the assumption that the commercial banking system multiplies available cash resources when buying bonds it will be necessary to take some concrete cases of bond purchases and record the changes that occur in the balance sheets of commercial banks. It is of course always necessary to start with an individual bank and then show the changes that result in the accounts of banks in general.

For simplicity we may start with a bank that has a capital of $100,000 and cash of $100,000. Investments in building and equipment, loans, and so forth may for simplicity be omitted. Increases or decreases of items on the balance sheet will be indicated by the + or − sign, as the case may be. The initial statement is as follows:

Resources		Liabilities	
Cash.....	$100,000	Capital stock...	$100,000

Assume now a purchase of $10,000 in bonds from A. The statement becomes:

Resources		Liabilities	
Cash.....	$100,000	Capital stock...	$100,000
Bonds.....	+10,000	Deposits (A)....	+10,000

This requires explanation. First, is it a fair assumption that the cash will remain at $100,000? Yes, because the seller of the bonds does not usually wish to withdraw cash; he prefers a checking account. Hence the sale of $10,000 of bonds to the bank results in a deposit account of $10,000. Assume now, however, that A draws a check against this deposit account in favor of B; assume further that B deposits the account to his credit in this very bank. It is apparent that the $10,000 of deposits have merely been transferred from the account of A to the account of B and that the totals

are unchanged. Assume now that B writes a check in favor of C, and that instead of depositing this check in this same bank (X) he deposits it in Bank Y. The result of this is that deposits have been reduced by $10,000 in Bank X but increased by $10,000 in Bank Y, thus:

Bank X		Bank Y	
Resources	Liabilities	Resources	Liabilities
Cash... $100,000 Bonds.. 10,000	Capital stock. $100,000 Deposits..... −10,000	Due from Bank X +$10,000	Deposits..+$10,000

Bank Y has a claim against Bank X for $10,000. When this claim is met will not the cash in Bank X be reduced by $10,000? The answer is, only on condition that there are no counterbalancing claims of Bank X against Bank Y. In practice this would be contrary to fact—for Bank Y is also making investments in bonds, and checks are being drawn against the resulting deposit accounts which find their way into Bank A—when they can be used to cancel the claims of Bank B. Of course in practice these counterclaims are the result of a variety of banking operations rather than of bond purchases only, but it is necessary for the sake of clear exposition to isolate for the moment the bond transactions.

Assume now that in time Bank X makes additional bond purchases from E, F, G, etc., amounting to a total of $1,590,000. The balance sheet becomes:

Resources		Liabilities	
Cash.....	$100,000	Capital stock...	$100,000
Bonds.....	10,000	Deposits.....	10,000
Bonds.....+1,590,000		Deposits (E, F, G, etc.) .....+1,590,000	

Again, is it a fair assumption that E, F, G, etc., will not withdraw cash? It is certainly exactly as reasonable an assumption as that *commercial* borrowers will not withdraw cash; and the assumption, moreover, corresponds with the facts; checks are of course used quite as commonly in fixed capital operations as in commercial business. Now, E, F, G, etc., draw checks against their respective

deposit accounts, and the receivers of these checks deposit them either in this Bank X or in Bank Y in the same city, or in Bank Z, etc., in other communities. Somewhere in the banking system deposits remain increased by $1,590,000 as the result of the bond purchases of Bank X. Similar bond purchases are concurrently being made by commercial banks everywhere, and resulting deposit accounts are being created in commercial banks somewhere—deposit accounts which remain permanently augmented so long as checks remain the prevailing means of making payment.

In the illustrations above we have been assuming *no* withdrawals of specie. This checking system, however, is not universal, and cash payments therefore occasionally have to be made. It is for this reason that a cash reserve has to be maintained, and it is for this reason that, with the present organization of the commercial banking system, $1,600,000 is as far as a bank can go in the purchase of bonds (or in the making of short-time loans) on the basis of a reserve of $100,000, as seen in the previous paper.[1] The cash reserve of our banking system as a whole is about 6 per cent.

The analysis which we have been making is obviously precisely like that which has frequently been made in explanation of the creation of deposits through the making of loans. Our anaylsis is correct in so far as the assumption that the seller of the bonds takes a checking account is correct. Granted that he does not withdraw cash, may he not, however, often ask for a bank draft instead of taking a personal checking account, and would not this put a new face on the problem? Specific accounts will again aid us in ascertaining the actual results. Let us assume a purchase of $10,000 of bonds and payment by a bank draft:

Resources		Liabilities	
Cash.....	$100,000	Capital stock...	$100,000
Bonds.....	+10,000		

The balancing item for the bonds, +$10,000, would be either: Due from banks −$10,000 on the assets side, or Due to banks +$10,000 on the liabilities side. That is, the claims of Bank X against its correspondent have been reduced by $10,000, or the

[1] See *Journal of Political Economy*, XXVI, May, 1918, pp. 497–503.

claims of the correspondent against Bank X have been increased by $10,000. Assuming that a liability "due to banks" has been increased by $10,000, let us see if this shortly results in a loss of cash. Will Bank Y present its claim and ask for cash? Certainly not, as a rule, for bankers in relations between themselves are even less likely to require specie payments than business men in their relations with banks. "Cash moves only as a last resort." So long as there are counterclaims arising from similar bond purchases (or from other operations) by the correspondent bank cash payments will not be required.

But what of the seller of the bonds? Does he not cash the bank draft at his own bank? Obviously not, so long as it is more convenient to deposit it and draw checks at pleasure. Suppose the draft is deposited with Bank Y—the correspondent being Bank Z in another city—Bank Y's balance sheet would show:

Resources		Liabilities	
Due from banks	+$10,000	Deposits	+$10,000

As in the previous cases the collection of this draft and the payment of the deposit account would involve the use of actual cash only as a last resort.

There is a third way in which the seller of bonds might prefer to be paid, namely, by a cashier's check. This does not, however, change the ultimate situation. Bank X's statement would show:

Resources		Liabilities	
Bonds	+$10,000	Cashier's checks outstanding	+$10,000

When the cashier's check is presented to a bank somewhere it will usually not be cashed but will be entered as a deposit account. Again, all along the line cash will be paid only as a last resort. And in the system as a whole sixteen dollars of bonds may be bought for every dollar of cash reserve.[1]

I say sixteen of bonds for every one of cash; but this precise ratio is of course unproved. The analysis in the preceding paper

[1] Whether this expansion of credit has any economic results other than to raise the price level must be discussed at another time.

showed this to be the ratio of the total cash to total loans and investments. So long, however, as the sale of bonds to banks results in the creating of checking accounts that are seldom liquidated there is no apparent reason why the phenomenon should not be quite as true with investments as with short-time loans—unless, indeed, it affects the liquidity of bank assets—and hence the amount of reserve required. Discussion of this possibility must, however, be postponed for the moment. The question of liquidity of bank assets in connection with each of the various forms of credit extension will constitute the subject of the next paper in this series.

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[To be continued]

NOTES

WASHINGTON NOTES

OUTCOME OF THE THIRD LIBERTY LOAN

Final figures for the Third Liberty Loan, showing total subscriptions of $4,170,019,650, or an oversubscription of about 39 per cent, the total number of subscribers being not far from 17,000,000, represent an outcome that far exceeds in success anything that had been expected either by Treasury authorities or by observers of the banking condition of the country. The three successive Liberty Loans afford an interesting progression in matters of public finance. The first, offered at 3 per cent and with very large provisions of exemption from taxation, appears to have been subscribed almost entirely by men of large income, and the subsequent transfers of bonds have tended still more to concentrate the securities of the first loan in the hands of the wealthier class in the community; the second, placed at 4 per cent, was taken by about 9,500,000 subscribers as against 4,500,000 for the first loan, and the facts would indicate that it was absorbed to no inconsiderable extent by people of moderate resources; the third loan, taken by 17,000,000 persons, seems to be not only far more widely distributed than either of its predecessors but also far more evenly absorbed—that is to say, it has been taken in blocks of far more nearly uniform and average size than was true of either the first or second loan.

There are several conditions which have contributed to this progressive change in the distribution of the several loans. In the first place, as the war has advanced and an understanding of it has become more general there has been developed a far better understanding not only of the objects of the war but also of the financial problems and responsibilities involved in it, and now, for the first time, the interest of all classes in the community is becoming thoroughly aroused. Secondly, the changes in the conditions and terms upon which the loans have been issued have decidedly altered the character of their appeal. Finally, a most important feature has been found in the change in methods of taxation which has occurred during the time the loans have been in progress. The present income and excess-profits taxes have necessarily absorbed a

very large share of the current income of persons with large means and investors of this class have been markedly absent during the period when the Third Liberty Loan was being placed. Perhaps the most satisfactory element in the whole situation, however, is the fact—which now appears, from informal reports, to be such—that only a comparatively limited degree of reliance upon banking assistance has been necessary.

So far as the flotation of the loan has thus far gone it is apparent that the smaller purchasers have preferred to draw upon their accumulated funds or savings rather than to rely very largely upon the assistance of their banks. Larger subscribers have, as usual, to some extent anticipated their future income for the purpose of increasing their subscriptions to bonds, but, partly due to the relatively less important share of the loan taken by these larger subscribers, such assistance has been kept to very moderate proportions. It is never possible to state in exact terms the effect of a great public loan upon the banking position until time has elapsed sufficient to permit the permanent absorption of the bonds. Some careful observers believe that the next few weeks will see a certain increase in applications for rediscounts at Federal Reserve banks, protected by government obligations, the proceeds to be used in enabling the member banks to provide for renewals or new loans necessitated by the wants of those who are engaged in the process of absorbing and carrying the government securities. This may or may not prove to be the case, but even should it be so, there is no reason at this time to believe that the demand thus exerted will be more than temporary or will exceed very moderate proportions. Unless the government's requirements should be increased much beyond the average figures of the past year the experience of the Third Liberty Loan would furnish good reason for believing that they could be met by the present methods of financing.

CALL FOR NEW TAXATION

The indicated prospect, however, is that the demands to be met during the coming year will be much larger than had been indicated during the past year. Secretary Baker's estimate that expenditures in connection with the placing of an adequate army in France may possibly run to $15,000,000,000 has largely changed the basis of computation. Assuming that some $3,000,000,000 or $4,000,000,000 are obtained from income and excess-profits taxes, and that Liberty Loans can be successfully floated in about the same proportion as during the past year (a total of $10,000,000,000 in round numbers), there would still remain a requirement of several billions to fill the gap due to the new estimates of

army and navy costs. As a result of this situation government officers are now looking to the possibilities of new taxation, but they find that excess-profits taxes have already been carried to the point of apparent maximum yield and that the taxes on the higher incomes can probably be increased but little from the standpoint of productiveness.

The higher middle-class incomes are already bearing a rather heavy burden, so that the natural conclusion has been tentatively in favor of increasing the rates of the normal tax and providing for a system of consumption taxes. Proposals to this effect are now before Congress, with the recommendation that they shall be acted upon at the current session. The question raised by such a suggestion is whether or not the extension of the system of taxation along the lines suggested will or will not actually result in bringing in a larger gross income to the government, or whether it will not result in somewhat reducing the yield. The experience of the Third Liberty Loan shows that the higher income recipients have in part discontinued their subscriptions because of the increasing burden of income and excess-profits taxes.

If the tax burden should now be carried on down into the lower ranges of income it would probably have the same effect upon bond subscribers in these income levels as has already been exerted in the higher ones. The truth is that the government is now taking, either through loans or taxation, practically the whole of the savings margin of the community, and that the only way of increasing the amount it can get is through increasing either the total product of industry or the amount of it that is saved. Some increases in productiveness may be possible, although they must of course contend with the steady drain of labor into the fighting forces. Savings can undoubtedly be largely increased and must be if greater outlay on war is to be provided for. The raising of funds through any other means would imply nothing more than inflation of credit and the raising of prices, processes neither of which would be of the slightest advantage to the government and would be of immense disadvantage and injury to the public. The problem of government financing is thus not, as was erroneously supposed by a large number of economists at the beginning of war, a choice between loans and taxation as methods of getting government revenue, but a problem of encouraging the development of a surplus of wealth that can be made available by either means for government purposes. There is grave danger that, in the new taxation plans, this point might be lost sight of and a mere theoretical preference for taxation be allowed to counterbalance a need for larger income.

THE "INFLATION" SITUATION

The continued high prices and the apparent tendency of prices to advance to still higher levels have brought about a more active discussion of the theory of prices and conditions tending to raise them than has existed at any time within perhaps twenty-five years. Foremost in this discussion is the question whether "inflation" is or is not the result of the operation of the Federal Reserve System, and if so in precisely what way. Much of the current discussion has apparently been based upon vague or indefinite ideas of the meaning of "inflation," but there is now considerable evidence that a more general consensus of opinion and agreement as to definitions is in sight.

"Inflation," in the sense in which the term is now being used by the more careful writers on the subject, is taken to signify the increase of bank credits not represented by any immediate addition to current wealth. Thus, for example, if the government borrows by an issue of bonds, such bonds being taken by the banks and payment for them made in the form of bank credit which is at once transferred to individuals who have furnished labor or supplies, it is evident that there has been a net addition to the purchasing power of the community not represented by any corresponding addition to wealth, whether of a salable or available form or otherwise. Here there is an "inflation" or exaggeration of, or addition to, the actual purchasing power of the community as compared or contrasted with the amount of goods in existence. From this point of view the measure of "inflation" is afforded by the total new holdings of bonds in banks which have become the basis for credits on the books of such banks, used or applied to the purchase of goods and services. Particularly is this true in those cases where the purchasing power so used takes a form which is available as "reserve" against other credits to be granted by the banks. Thus, for example, if the banks which purchased bonds in the illustration already given at once rediscount their own notes secured or protected by these bonds, at Federal Reserve banks, they thereby obtain a credit on the books of Federal Reserve banks which will sustain, theoretically at least, several times its own amount in the form of credits on the books of the banks which have been granted the rediscount. This means that the credit so granted may serve several times as a medium of purchasing power employed in gaining control of goods and services. In so far as paper secured by government bonds has been discounted on a semi-permanent or renewal basis, the Federal Reserve System may thus be regarded as serving as a means of "inflation." The same would be true of any banking system

which was placed in a position requiring the conversion of long-term obligations into immediate means of purchase.

Out of the same discussion has grown up a much clearer understanding, also, of the relation between loans and taxation. At the opening of the war there was a distinct tendency in many quarters to regard the effect of loans and taxation as distinctly different from one another. It is now apparently quite generally admitted that this is a distinction without a difference, and that the whole question between loans and taxation depends upon whether the funds furnished in either case are likely to be the result of saving or of bank borrowing. Taxes paid by a contributor from the proceeds of loans obtained by him would be an agency in "inflation," whereas a government bond sold to an investor who purchased it from funds saved out of his current income would not be. This modified view of the case largely does away with the cruder theories expressed early in the war and based upon the view that taxation practically always tended to keep down prices while loans in a similar way tended to advance them. Experience is showing that there is no basis for any such view, and the prevailing view of the general problem is being modified accordingly, as just indicated.

BOOK REVIEWS AND NOTICES

The Danish West Indies under Company Rule (1671–1754). With a Supplementary Chapter, 1755–1917, by WALDEMAR WESTERGAARD, PH.D., and an Introduction by H. MORSE STEPHENS. New York: Macmillan, 1917. Pp. xxiv+359. $2.50.

This volume is a substantial and scholarly contribution to our knowledge of the part played by commercial companies in European expansion as well as to the history of commerce and settlement on the islands of the Caribbean Sea. Lured by the mines, Spaniards neglected their insular possessions, with the result that almost every great European power ultimately gained a foothold on one or more of the West India Islands. Though less favorable for settlement, these tropic isles were long esteemed of far more commercial value than colonies in the temperate zone. Their productions did not compete with but supplemented those of the mother-country, their environment was unfavorable for the rise of rival manufactures, and they tended to drain Europe but slightly of man power. Moreover, their settlement with Africans identified West India colonization with one of the most lucrative commercial activities of the seventeenth and eighteenth centuries—the slave trade. The European occupation of the West Indies was, in fact, but one phase of a three-cornered commerce involving exports from Europe to the Guinea Coast, cargoes of slaves thence to the West Indies, and shipments of sugar from the latter to Europe—altogether a powerful stimulant to manufacturing, shipbuilding, breeding of seamen, and naval strength. Such was the alluring enterprise the realities of which the colonial powers were seeking to demonstrate through chartered commercial companies.

From the viking age Denmark had a more or less continuous interest in westward exploration and settlement, interrupted by the Black Death, but revitalized in the search for a northwest passage in the early seventeenth century. It was a Dutchman, John de Willom, however, who in 1625 proposed a Danish West India company. But wars delayed matters, and it was not until 1654 that a ship from Elsinore ventured to the West Indies. Others followed. In 1659 a Danish African company with factories on the Guinea Coast began the slave trade with Spanish America. Denmark's international relations, constantly borne in mind by the author, explain many vicissitudes of her colonial commerce.

Thus, in 1670, being an ally of England, she shared the latter's security from attack by Spain in the West Indies. The Danish West India Company, chartered in 1670 and resembling in many respects the British Hudson Bay Company, secured a monopoly of the trade and government of the unoccupied island of St. Thomas, which it settled in 1671 with one hundred and sixteen indentured servants and sixty-one convicts. At first there was great mortality, and convicts made wretched settlers. Sugar canes were obtained from the English at Tortola, many Dutch planters came in, and the Danish African Company was absorbed by the West India Company, thus solving the labor problem with slavery. By 1680 forty-six plantations were settled, the company cultivating two of its own.

In the critical years 1680–90 St. Thomas was frequented by buccaneers whom Danish officials often welcomed; Captain Kidd himself disposed of some of his loot there in 1699. Progress toward sober trade and settlement was slow. In 1685 the Brandenburg Guinea Company and the Danish Company agreed to a joint occupancy of St. Thomas for thirty years. The prime interest of the Brandenburgers, already in possession of an African post, was to secure a West India factory accessible to the colonies of Spain, England, and France. Denmark hoped to obtain German settlers as well as a share in the profits of the slave trade. But friction ensued, the Danes on one occasion breaking into the German warehouses to recover rent, and, in spite of their designs on Crab Island, Tobago, Tortola, and St. Eustatius, few Germans settled in the West Indies. In 1695 the German factory at St. Thomas was looted by the French; in the financial depression that followed, the agreement with the Danes expired and the Germans wound up their business both in Africa and the West Indies at a considerable loss. Frederick William I declared the whole enterprise misdirected energy and capital. Even at that period there is evidence that the Germans had little capacity in dealing with primitive peoples.

It was not until the administration of Governor Lorentz that St. Thomas entered upon a period of economic and social stability. Danish neutrality in the long wars ending in the Peace of Utrecht made that island an active center of trade for the belligerents, England, France, and Spain. Such in fact was the rôle played by the Danes in all colonial wars of the eighteenth century. In time of peace, also, when international trade was prohibited by mercantilist regulations, the Danish West Indies like the Dutch served as a distributing center for an enormous amount of illicit trade. Gradually the company and, after 1754, the royal authority relaxed all restrictions on trade with outsiders until

commerce at St. Thomas and St. John became entirely free in 1815, and that of St. Croix partially in 1823 and entirely in 1833. St. John was first occupied in 1719 and St. Croix was acquired from the French in 1733.

From 1754 to the present, a period which the author plans to cover in two more volumes, a brief but valuable summary is given of such important matters as the prohibition of the slave trade and slavery, the cosmopolitanism of the islands, the liberalization of commercial policy, the rise and decline of St. Thomas as an *entrepôt*, its importance as a coaling and naval station, the decay of sugar and the increase of cotton culture, the general depression of recent years, and the negotiations culminating in annexation to the United States.

The bibliography of twenty pages is admirable. The chief depositories of manuscripts are the Danish state archives, including the entire official records of the West India and Guinea companies, the company records kept at Copenhagen, the Copenhagen municipal archives, the Royal Library at Copenhagen, and the Bancroft collection at Berkeley, California, containing orders by governors of St. Thomas, planters' correspondence, and letter-books of Philip Gardelin, Governor Moth, and Christian Schweder. Particularly useful manuscripts are those by Martfeldt, an economist who visited the islands about 1765–68, and an account of the company by Mariager, who for over thirty years was in its employ and intimately acquainted with its affairs. From printed sources the author has drawn especially from Schück's *Brandenburg-Preussens Kolonial-Politik*. Among secondary writers Höst (1791) attempted the first chronological history of the Danish West Indies, Isert's travels to Guinea and the Caribbean (1788) are valuable for the slave trade, Knox's *Historical Account of St. Thomas* (New York, 1852) has been practically the only available book in English, Krarup's *Iversen* (1891) and *Milan* (1894) are accurate and exhaustive studies of the first and fourth governors, and Oldendorp's history of the Moravian mission in the Danish West Indies (1777) is still the best account of that subject. J. A. Friderica and Edvard Holm among modern scholars have written with care on the East and West India companies.

Appendixes of sixty-four pages contain manuscript data of considerable importance to the antiquarian and economic historian, including lists of governors, directors, and shareholders of the company, the company's charters of 1671 and 1697, correspondence, and statistical tables on population, plantations, slave cargoes, prices of sugar and cotton, exports of sugar from Copenhagen, receipts and debts of the company, its invested capital and returns, and various phases of its business in sugar and cotton.

Altogether the work has been done with accuracy, extensive acquaintance with the sources to 1754, adequate knowledge of the European background, and a sensible appreciation of the significant rôle these tiny but strategically situated islands have played in the commerce and, as neutrals, in the wars of Colonial America, and of the naval worth, as Admiral Mahan predicted, they are likely to possess in the future.

In places perhaps the book would have gained in clearness and value had the author pursued less the method of general chronological narrative and had organized his data more completely according to well-defined subjects. An economic and social analysis of West India society can be accomplished, however, only after more studies of the type of Dr. Westergaard's enable us to make comparisons of the various national groups in the West Indies. When the facts of West India development are fully revealed and understood we shall be in a far better position to appreciate the economic as well as the political and diplomatic history of America.

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The Fetishism of Liberty. By HARRY WATON. New York: Marxian Philosophical Society, 1917. Pp. vii+101.

Is not your iconoclast at bottom a devout worshiper? A Marxian socialist declares liberty to be "one of the most dangerous idols worshiped by the people of this century," and thereupon justifies his faith in socialism because it is in harmony with that tendency of the cosmic process of evolution—universal freedom. As the patron saint sought to destroy the fetishism of commodities and humanize them, the humble follower attacks the fetishism of liberty and seeks to socialize it. Both are worshipers of capitalism and liberty still.

We start with the familiar conflict between the individual or group with inherited anti-social impulses and society with its legal and customary restraints. The socialist outdoes Spencer here. Then comes the happy ending, where the individual is completely socialized and conflict is no more. This is true to Marxian prophecy, "We feel in a state of liberty when we can gratify our needs and desires." The individual is not and cannot be free until he seeks the social good. The tendency of social evolution is toward a state of ever-increasing constraint of the anti-social impulses of the individual. Hence, only as we seek the satisfaction of our social nature do we find freedom and happiness. Fortunately the conditions of life make for pro-sociality and individual well-being at the same time.

The essay has certain faults. It abounds in contradictions, perhaps because terms are loosely used; the thread of the argument does not unroll singly and continuously; and generalizations are not always supported by data. And yet there is such sound truth in its emphasis upon the true uses of liberty and the opportunity to satisfy one's social needs and desires that all else may be forgotten.